LBT-A590/A595

SERVICE MANUAL

AEP Model
LBT-A590

E Model
LBT-A590/A595

Australian Model
PX Model
LBT-A595

- LBT-A590/A595 is composed of following models.
  As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENT MODEL NAME FOR THESE SYSTEM

	LBT-A590/595
AMPLIFIER	TA-A590
CASSETTE DECK	TC-A590
TUNER	ST-A790
CD PLAYER	CDP-C433M or CDP-M46

STEREO COMPONENT SYSTEM

SONY®

Sony Corporation
Audio Group

9-959-478-11

English
94C0570-1D
Printed in Japan

© 1994.3

Published by Audio Sector Quality Assurance Dept.

PARTS LIST

Part No.	Description
1-501-374-11	ANTENNA , LOOP
1-501-594-11	ANTENNA(FM)(A590 : AEP,EE,IT,CIS)
1-501-659-11	ANTENNA(FM)(A590 : EA,E,MY,SP/ A595)
3-758-315-41	MANUAL, INSTRUCTION (AEP) (ENGLISH , FRENCH , SPANISH , PORTUGUESE)
3-758-315-51	MANUAL, INSTRUCTION (AEP,G,IT) (GERMAN , DUTCH , SWEDISH , ITALIAN)
3-758-315-61	MANUAL, INSTRUCTION (EE,CIS) (ENGLISH , GERMAN , RUSSIAN , POLISH)
3-758-315-71	MANUAL, INSTRUCTION (EE) (CZECH,HUNGARIAN)
3-758-315-81	MANUAL, INSTRUCTION (A590 : EA,E,MY,SP/A595) (ENGLISH , FRENCH , SPANISH , CHINESE)
3-758-344-11	MANUAL, INSTRUCTION (for CDP-C433M) (ENGLISH , FRENCH , SPANISH , CHINESE)
3-758-344-41	MANUAL, INSTRUCTION (for CDP-C433M) (GERMAN , DUTCH , ITALIAN , PORTUGUESE)
1-467-615-11	COMMANDER,STANDARD (RM-S521)
4-956-911-01	LID ,SLIDE (RM-S521)

	Part No.	Description
*	4-965-023-01	INDIVIDUAL CARTON (TA-TC-CDP-ST) (A590 : AEP,EE,CIS)
*	4-965-024-01	INDIVIDUAL CARTON (A590 : EA,E3,MY)
*	4-965-025-01	INDIVIDUAL CARTON (A590 : SP)
*	4-965-026-01	INDIVIDUAL CARTON (TA-TC-CDP) (A590 : AEP,G,IT)
*	4-965-027-01	INDIVIDUAL CARTON(A595 : E)
*	4-965-028-01	INDIVIDUAL CARTON(A595 : AU,PX)
*	4-967-147-01	INDIVIDUAL CARTON(A595 : MX)
	1-551-734-11	CORD,CONNECTION(PIN-PIN) (A590 : EA,E,MY,SP/A595)
	1-574-265-11	CORD(WITH CONNECTOR)(3P-3P)
	1-590-822-11	CORD(WITH CONNECTOR)(3P-15P-15P)
	1-590-823-11	CORD(WITH CONNECTOR)(3P-11P-11P)
*	3-350-154-01	CUSHION(TC)
*	4-922-998-06	CUSHION(CDP-M46)
*	4-929-563-01	CUSHION(ST)
*	4-944-040-01	CUSHION(FRONT)(CDP-C433M)
*	4-944-041-01	CUSHION(REAR)(CDP-C433M)
*	4-965-421-01	CUSHION(TA)

• Abbreviations

AU : AUSTRALIA
MX : MEXICO
G : GERMANY
SP : SINGAPORE
IT : ITALIAN
EA : SAUDI ARABIA
EE : EAST EUROPEAN
MY : MALAYSIA

NOTE :

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

TA-A590

SERVICE MANUAL

AEP Model
E Model
Australian Model
PX Model

SONY
LBT-A590

TA-A590 is the amplifier in LBT-A590/A595.

This photo is E/Australian/PX model.

SPECIFICATIONS

DIN power output 60 W + 60 W (6 ohms, at 1 kHz)
Continuous RMS power output
70 W + 70 W (6 ohms, at 1 kHz, 5% THD)
Music power output 110 W + 110 W (6 ohms)

Input	Jack type	Sensitivity	Impedance
PHONO (MM)	Phono	3 mV	47 kohms
VIDEO/MD	Phono	400 mV	47 kohms

Output	Jack type	Impedance
SURROUND SPEAKER	Phono	Accepts speakers of 16 ohms
HEADPHONES	Stereophone	Accepts headphones of 8 ohms or more

Frequency response 15 Hz to 50 kHz $^{+0}_{-3}$dB
Power requirements Model for Australian:
240 V AC, 50/60 Hz
Models for European countries:
220 V – 230 V AC, 50/60 Hz
Models for other countries: 120 V,
220 V or 230 – 240 V AC adjustable,
50/60 Hz
Model for Mexican: 120 V AC, 60 Hz

Power consumption AEP model : 165 W
E model : 190 W
AU model : 190 W
MX model : 167 W
Weight AEP model : Approx. 6.6 kg (14 lbs 9 oz)
MX model : 6.1 kg
Models for other countries: 6.7 kg
Dimensions Approx. 355 x 135 x 330 mm
(14 x 5 $^1/_4$ x 12 $^7/_8$ inches)
(w/h/d, including projections)

Design and specifications are subject to change without notice.

- Abbreviations
  AU : Australian
  MX : Mexican

INTEGRATED STEREO AMPLIFIER

SONY®

MICROFILM

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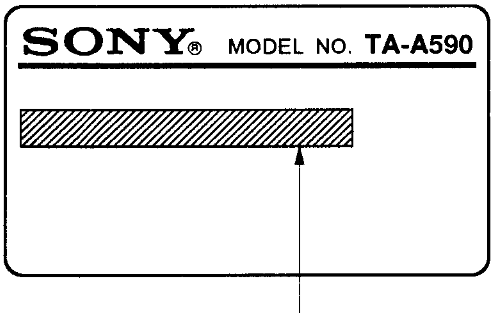
MODEL IDENTIFICATION

– Specification Label Printed on Back Panel –



AEP, German, Italian, East European,
CIS model: AC 220 – 230 V ~50/60 Hz
Australian model: AC 240 V ~50/60 Hz
E, Saudi Arabia, Malaysia, Singapore,
PX model: AC 120/220/230 – 240 V ~50/60 Hz
Mexican model: AC 120 V ~60 Hz

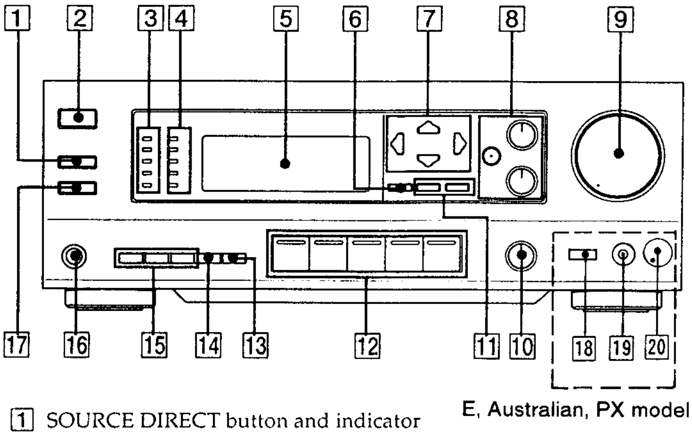
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. LOCATION OF CONTROLS



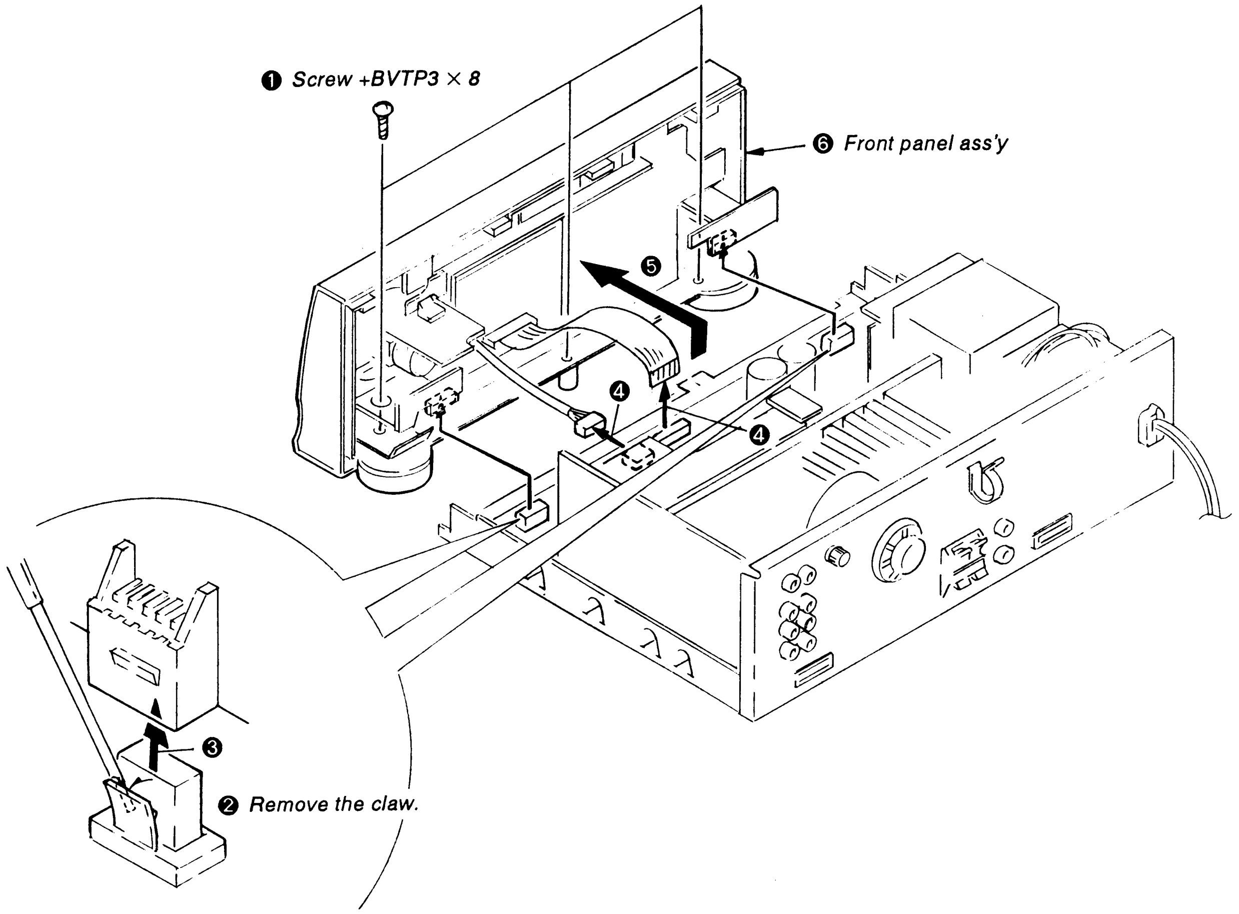
1 SOURCE DIRECT button and indicator (86)
2 POWER switch (18)
3 SELECT 5/PERSONAL FILE setting indicators (88, 98)
4 SURROUND MODE/OFF, SURROUND LEVEL setting indicators (86)
5 Display window
6 DISPLAY button (94)
7 CURSOR CONTROL buttons (88, 90, 94, 98)
8 DYNAMIC BASS SYSTEM button and controls (ON/OFF, FREQ, LEVEL) (20)
9 VOLUME control (20)
10 BALANCE control (20)
11 SURROUND buttons (MODE/OFF, LEVEL) (86)
12 Function selectors and indicators (38)
13 MEMORY button and indicator (96)
14 EQ FLAT button (94)
15 CURSOR MODE buttons (SELECT 5, PERSONAL FILE, EQ and indicators) (88, 90, 96, 98)
16 HEADPHONES jack (20)
17 P. FUNCTION button and indicator (122)

18 KARAOKE PON button (E, Australian, PX, model)
19 MIC jack (E, Australian, PX, model)
20 MIC LEVEL control (E, Australian, PX, model)

SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

Front panel ass'y

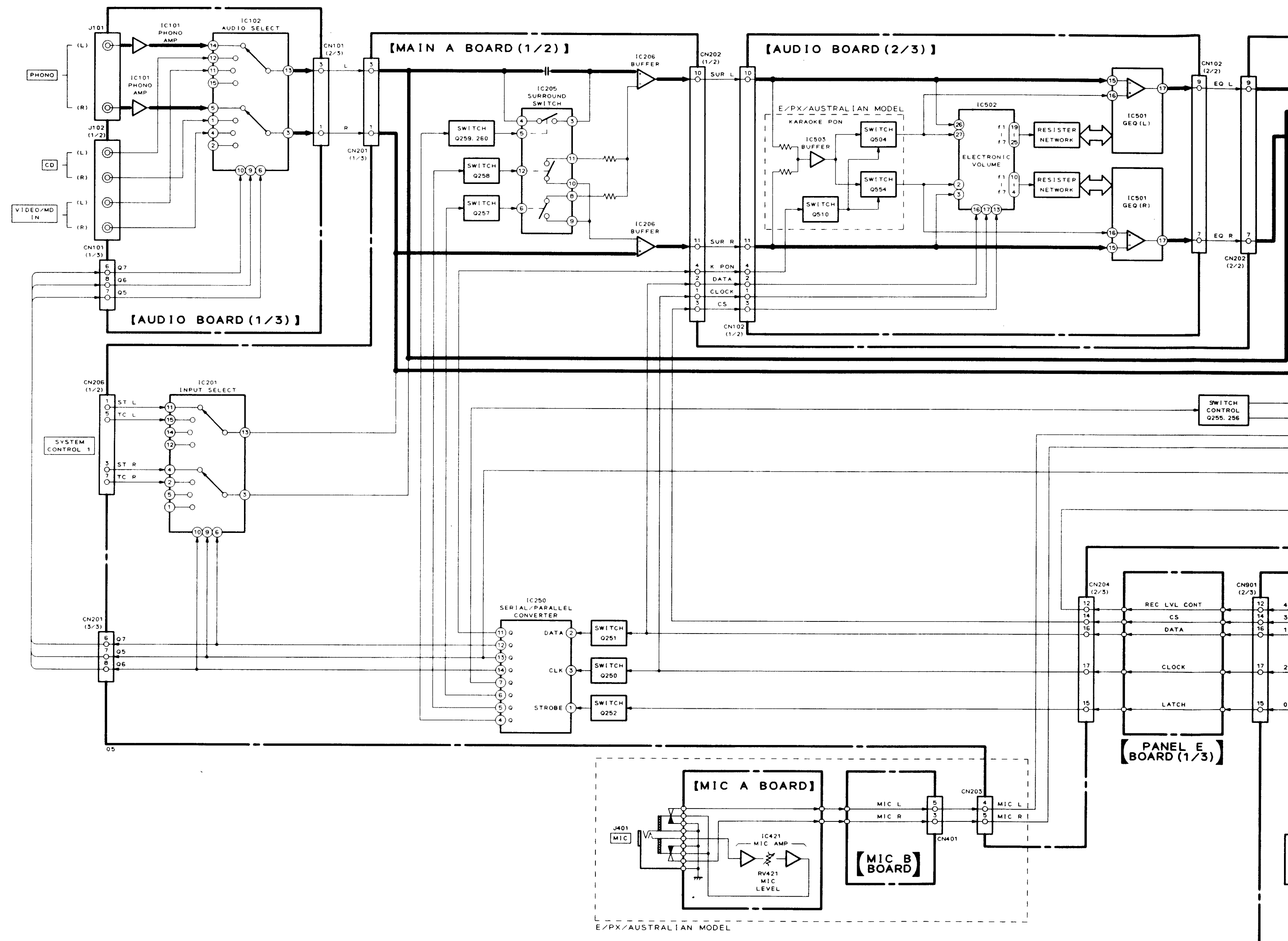

❶ Screw +BVTP3 × 8

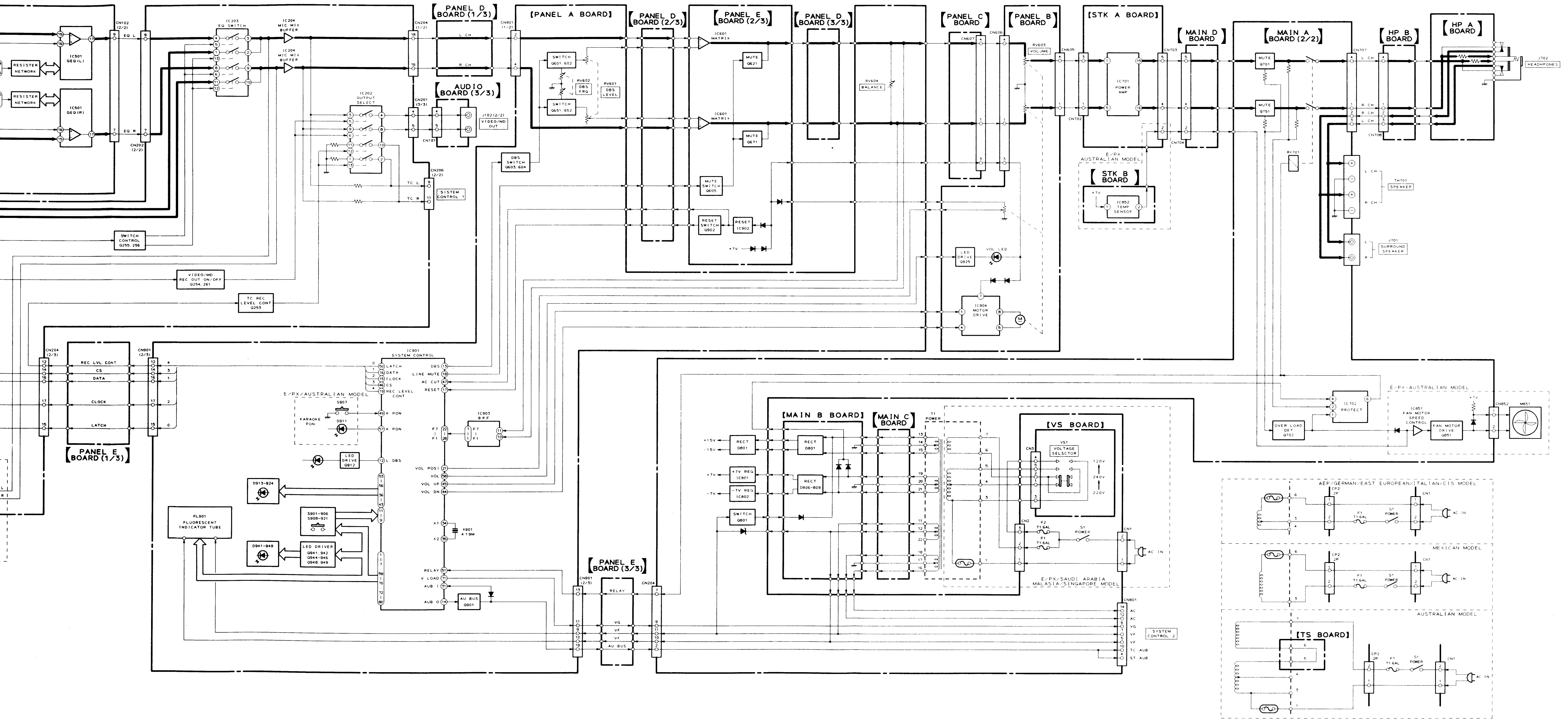
❻ Front panel ass'y

❷ Remove the claw.

SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM


J101
PHONO
(L)
(R)
IC101 PHONO AMP
IC101 PHONO AMP
IC102 AUDIO SELECT
J102 (1/2)
CD
VIDEO/MD IN
CN101 (2/3)
CN101 (1/3)
Q7
Q6
Q5
【AUDIO BOARD (1/3)】
【MAIN A BOARD (1/2)】
CN201 (1/3)
L
R
IC205 SURROUND SWITCH
SWITCH Q259, 260
SWITCH Q258
SWITCH Q257
IC206 BUFFER
IC206 BUFFER
CN202 (1/2)
SUR L
SUR R
K PON
DATA
CLOCK
CS
CN102 (1/2)
【AUDIO BOARD (2/3)】
E/PX/AUSTRALIAN MODEL
KARAOKE PON
IC503 BUFFER
SWITCH Q504
SWITCH Q554
SWITCH Q510
IC502
ELECTRONIC VOLUME
f1
f7
RESISTER NETWORK
RESISTER NETWORK
IC501 GEQ (L)
IC501 GEQ (R)
CN102 (2/2)
EQ L
EQ R
CN202 (2/2)
SWITCH CONTROL Q255, 256
CN206 (1/2)
SYSTEM CONTROL 1
ST L
TC L
ST R
TC R
IC201 INPUT SELECT
CN201 (3/3)
05
IC250 SERIAL/PARALLEL CONVERTER
DATA
CLK
STROBE
SWITCH Q251
SWITCH Q250
SWITCH Q252
CN204 (2/3)
REC LVL CONT
CS
DATA
CLOCK
LATCH
CN901 (2/3)
【PANEL E BOARD (1/3)】
【MIC A BOARD】
J401
MIC
IC421 MIC AMP
RV421 MIC LEVEL
【MIC B BOARD】
CN401
CN203
MIC L
MIC R
E/PX/AUSTRALIAN MODEL


PANEL D BOARD (1/3)
PANEL A BOARD
PANEL D BOARD (2/3)
PANEL E BOARD (2/3)
PANEL D BOARD (3/3)
PANEL C BOARD
PANEL B BOARD
STK A BOARD
MAIN D BOARD
MAIN A BOARD (2/2)
HP B BOARD
HP A BOARD
AUDIO BOARD (3/3)
STK B BOARD
PANEL E BOARD (1/3)
PANEL E BOARD (3/3)
MAIN B BOARD
MAIN C BOARD
VS BOARD
TS BOARD
RESISTER NETWORK
IC501 GEQ(L)
IC501 GEQ(R)
IC203 EQ SWITCH
IC204 MIC MIX BUFFER
IC202 OUTPUT SELECT
SWITCH Q601, 602
SWITCH Q651, 652
RV602 DBS FRQ
RV601 DBS LEVEL
DBS SWITCH Q603, 604
IC601 MATRIX
MUTE Q621
MUTE Q671
MUTE SWITCH Q605
RESET SWITCH Q902
RESET IC902
RV603 VOLUME
RV604 BALANCE
IC701 POWER AMP
IC852 TEMP SENSOR
MUTE Q701
MUTE Q751
RV701
J702 HEADPHONES
TH701 SPEAKER
J701 SURROUND SPEAKER
LED DRIVE Q925
VOL LED
IC904 MOTOR DRIVE
M
E/PX AUSTRALIAN MODEL
SYSTEM CONTROL 1
SWITCH CONTROL Q255, 256
VIDEO/MD REC OUT ON/OFF Q254, 261
TC REC LEVEL CONT Q253
J102 (2/2) VIDEO/MD OUT
IC901 SYSTEM CONTROL
REC LVL CONT
CS
DATA
CLOCK
LATCH
E/PX/AUSTRALIAN MODEL
S907 KARAOKE PON
D911
LED DRIVE Q912
IC903 B.P.F
D913-924
S901-906 S908-921
D941-949
LED DRIVER Q941, 942 Q944-946 Q948, 949
FL901 FLUORESCENT INDICATOR TUBE
X901 4.19M
AU BUS Q901
RELAY
VG
VF
AU BUS
RECT D801
+7V REG IC801
-7V REG IC802
SWITCH Q801
RECT D806-809
T1 POWER
VS1 VOLTAGE SELECTOR
120V
240V
220V
F2 T1.6AL
F1 T1.6AL
S1 POWER
AC IN
E/PX/SAUDI ARABIA MALASIA/SINGAPORE MODEL
SYSTEM CONTROL 2
TC AUB
ST AUB
IC702 PROTECT
OVER LOAD DET Q702
E/PX/AUSTRALIAN MODEL
IC851 FAN MOTOR SPEED CONTROL
FAN MOTOR DRIVE Q851
M851
AEP/GERMAN/EAST EUROPEAN/ITALIAN/CIS MODEL
MEXICAN MODEL
AUSTRALIAN MODEL
CP2 2P
CN1

3-2. MAIN SECTION PRINTED WIRING BOARDS

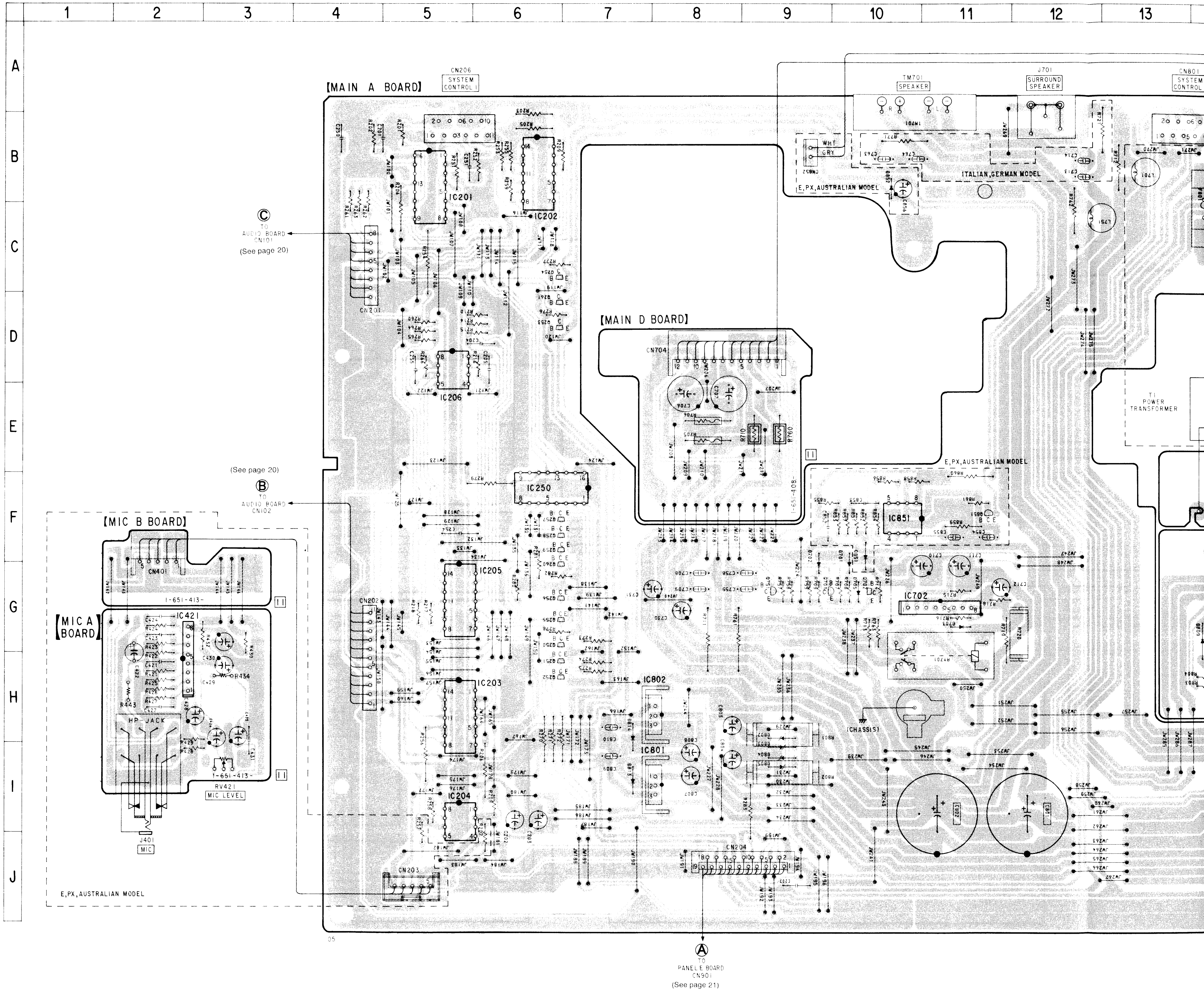
- See page 24 for Semiconductor Lead Layouts.

- **Semiconductor Location**

Ref. No.	Location
D701	F-10
D702	F-9
D703	G-11
D705	G-10
D801	G-15
D802	H-9
D803	I-9
D804	I-9
D805	I-9
D806	G-14
D807	G-14
D808	G-14
D809	G-13
D811	H-14
D812	H-14
D813	I-7
D814	H-7
D821	G-17
D822	I-16
D823	I-17
D851	F-10
D852	B-10
IC201	B-5
IC202	B-6
IC203	H-5
IC204	I-5
IC205	G-5
IC206	D-5
IC250	F-6
IC421	G-2
IC701	A-19
IC702	G-10
IC801	I-7
IC802	H-7
IC851	F-10
IC852	B-17
Q250	G-6
Q251	H-6
Q252	H-6
Q253	D-6
Q254	C-6
Q255	G-6
Q256	G-6
Q257	F-6
Q258	F-6
Q259	F-6
Q260	G-6
Q261	D-6
Q701	G-9
Q702	G-10
Q751	G-9
Q801	J-16
Q851	F-11

Note

- ○—— : parts extracted from the component side.



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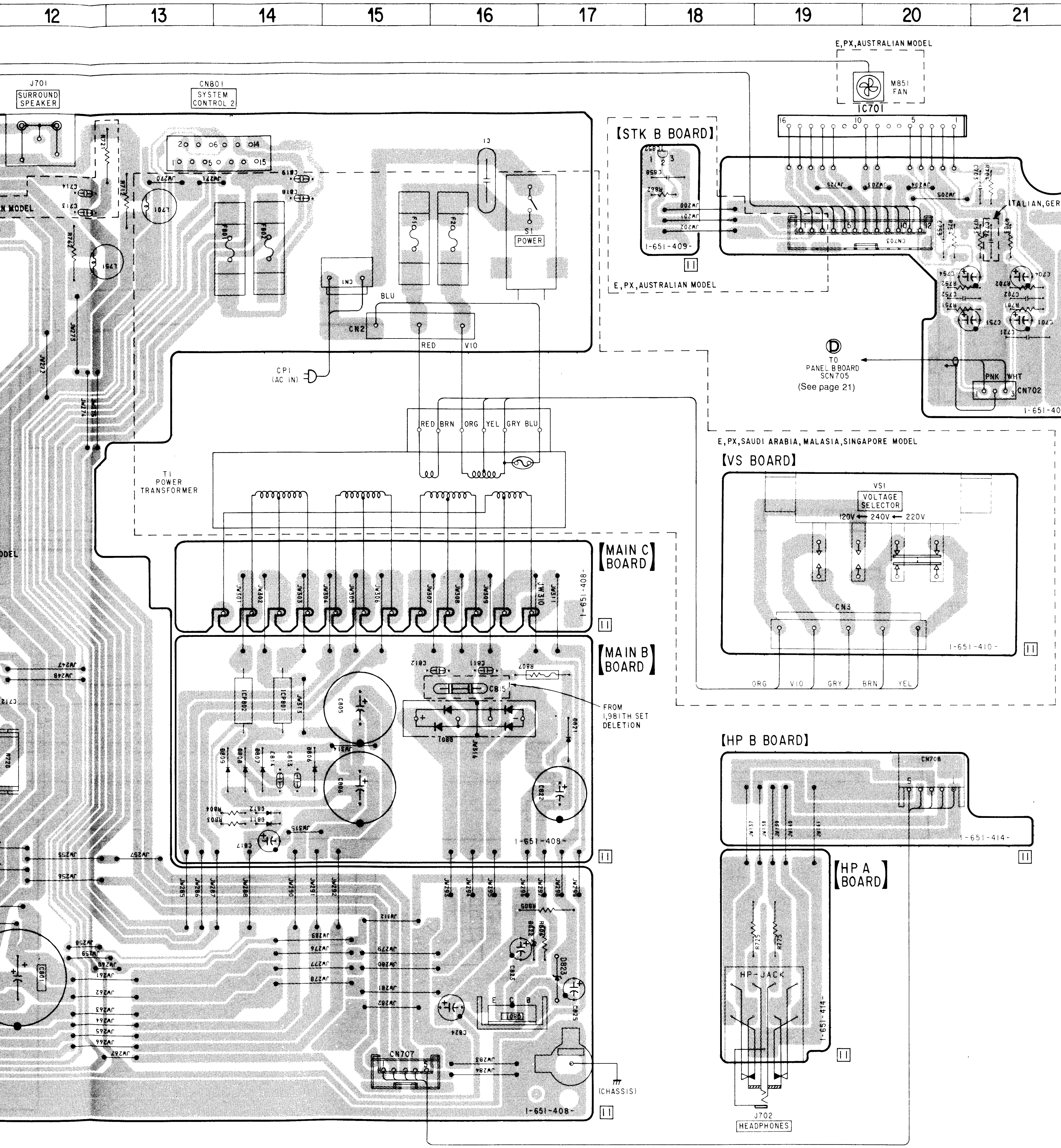
11
12
13
A
B
C
D
E
F
G
H
I
J
[MAIN A BOARD]
CN206 SYSTEM CONTROL
TM701 SPEAKER
J701 SURROUND SPEAKER
CN801 SYSTEM CONTROL
E,PX,AUSTRALIAN MODEL
ITALIAN,GERMAN MODEL
WHT
GRY
IC201
IC202
IC206
IC250
IC205
IC203
IC204
IC802
IC801
IC851
IC702
CN201
CN202
CN203
CN204
[MAIN D BOARD]
CN704
1-651-408-
T1 POWER TRANSFORMER
(CHASSIS)
Ⓒ TO AUDIO BOARD CN101 (See page 20)
(See page 20) Ⓑ TO AUDIO BOARD CN102
[MIC B BOARD]
CN401
1-651-413-
[MIC A BOARD]
IC421
R434
R443
HP-JACK
1-651-413-
RV421 MIC LEVEL
J401 MIC
E,PX,AUSTRALIAN MODEL
Ⓐ TO PANEL E BOARD CN901 (See page 21)


12
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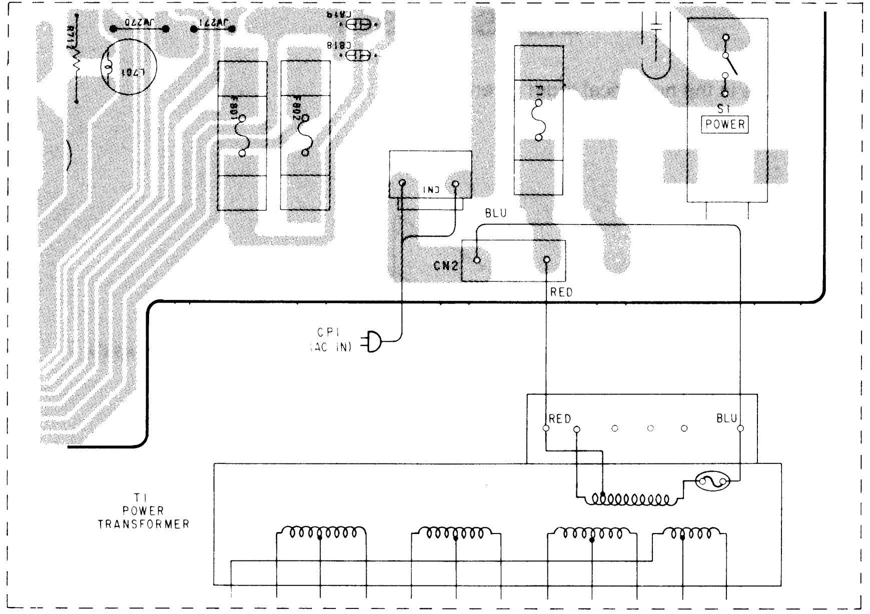
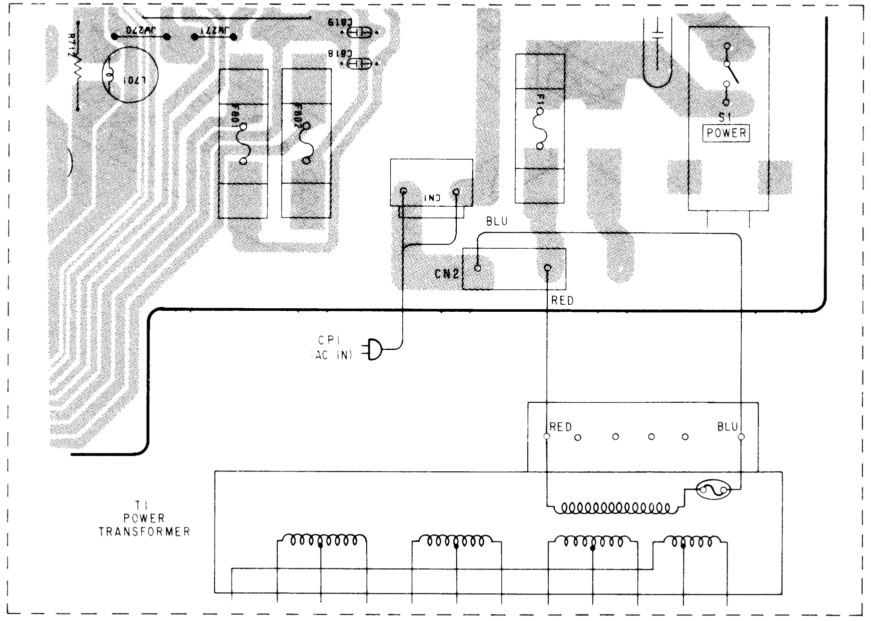
21
22
23
24
25
26
27
28
J701
SURROUND SPEAKER
CN801
SYSTEM CONTROL 2
E,PX,AUSTRALIAN MODEL
M851
FAN
IC701
[STK B BOARD]
1-651-409-
E,PX,AUSTRALIAN MODEL
[STK A BOARD]
ITALIAN,GERMAN MODEL
CN703
CN702
PNK
WHT
1-651-409-
TO
PANEL B BOARD
SCN705
(See page 21)
S1
POWER
BLU
CN1
CN2
RED
V10
CP1
(AC IN)
T1
POWER
TRANSFORMER
RED
BRN
ORG
YEL
GRY
BLU
E,PX,SAUDI ARABIA,MALASIA,SINGAPORE MODEL
[VS BOARD]
VS1
VOLTAGE SELECTOR
120V
240V
220V
CN3
1-651-410-
ORG
V10
GRY
BRN
YEL
[MAIN C BOARD]
1-651-408-
[MAIN B BOARD]
FROM
1,981TH SET
DELETION
1-651-408-
[HP B BOARD]
CN708
1-651-414-
[HP A BOARD]
HP-JACK
1-651-414-
J702
HEADPHONES
CN707
(CHASSIS)
1-651-408-

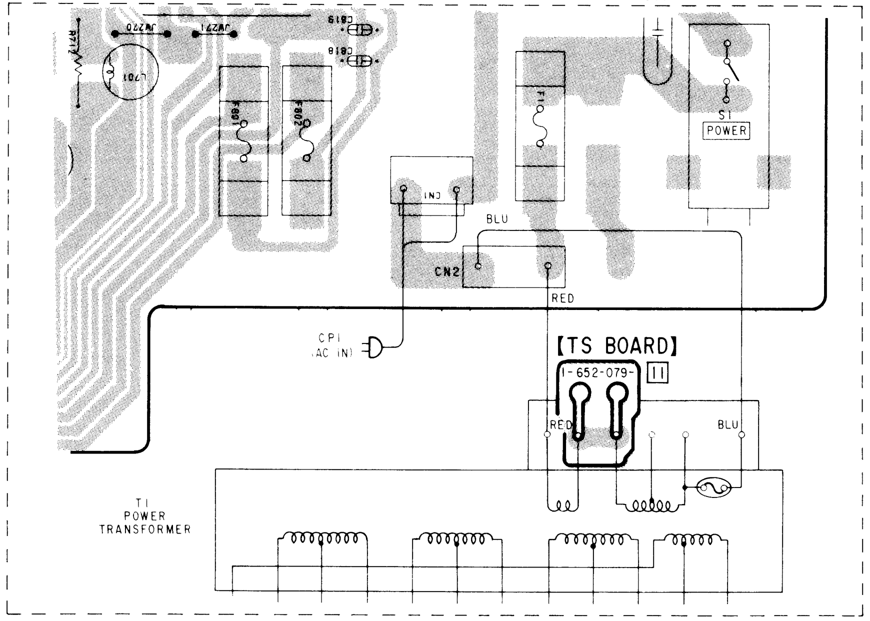
AEP,GERMAN,EAST EUROPEAN,ITALIAN,CIS MODEL


S1
POWER
CN1
BLU
CN2
RED
CP1
(AC IN)
RED
BLU
T1
POWER
TRANSFORMER

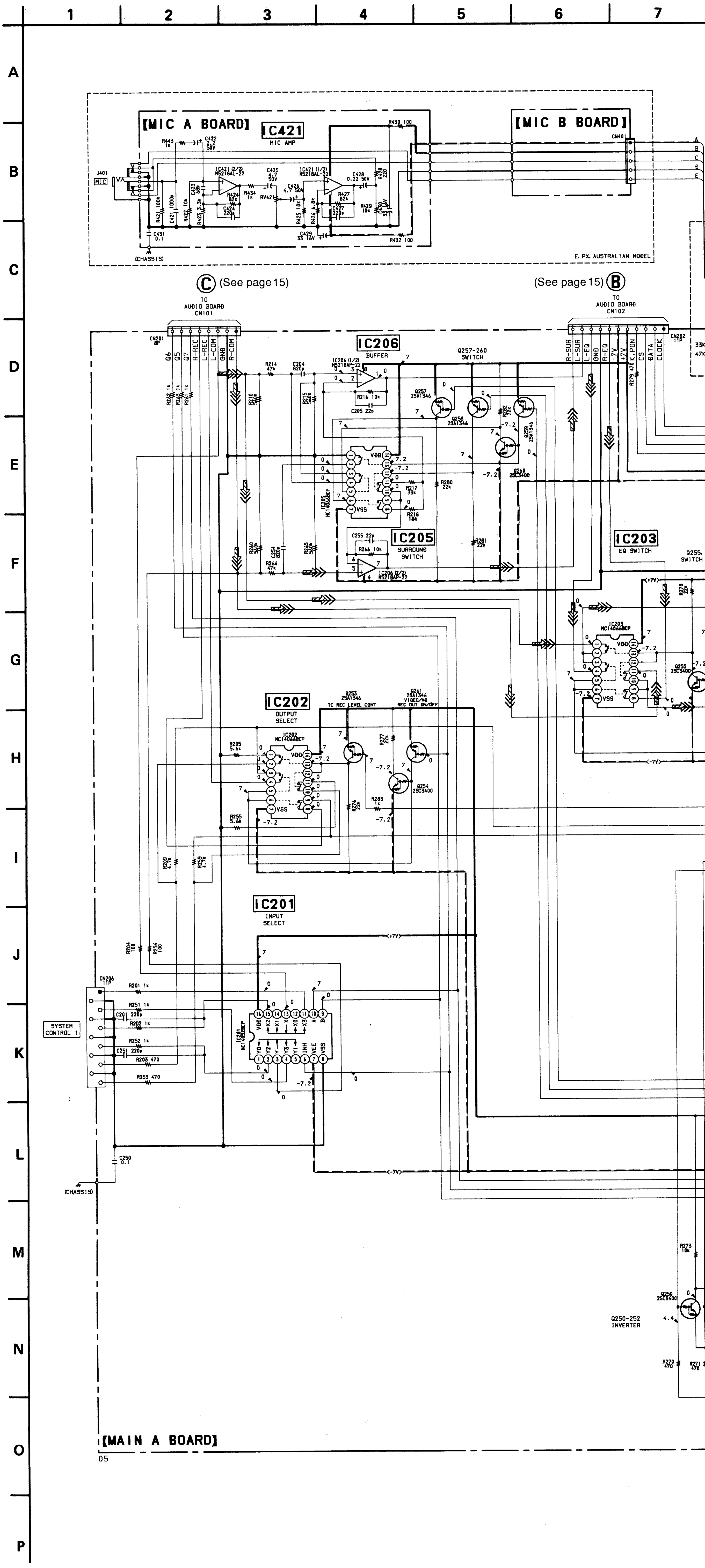
MEXICAN MODEL


S1
POWER
CN1
BLU
CN2
RED
CP1
(AC IN)
RED
BLU
T1
POWER
TRANSFORMER

AUSTRALIAN MODEL


S1
POWER
CN1
BLU
CN2
RED
CP1
(AC IN)
[TS BOARD]
1-652-079-
RED
BLU
T1
POWER
TRANSFORMER

3-3. MAIN SECTION SCHEMATIC DIAGRAM



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A
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C
D
E
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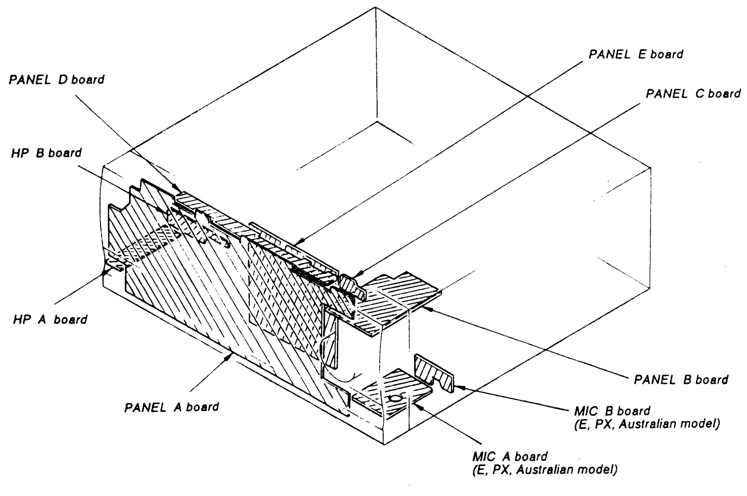
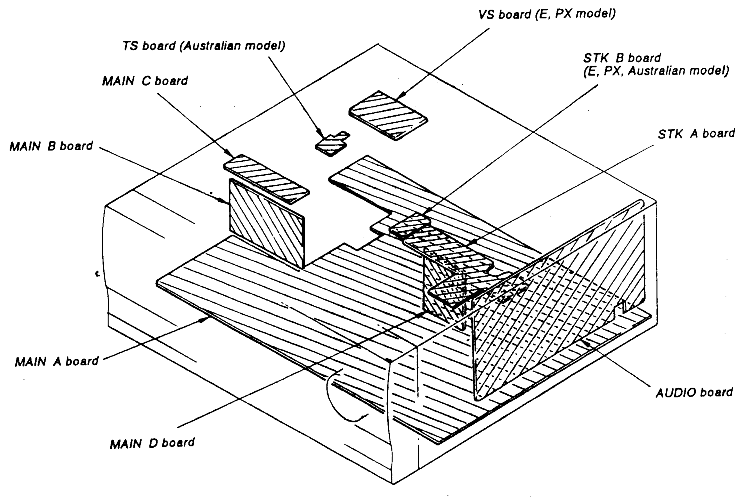
G
H
I
J
K
L
M
N
O
P
[MIC A BOARD]
IC421
MIC AMP
J401
MIC
IC421 (2/2) M5218AL-22
IC421 (1/2) M5218AL-22
R430 100
R432 100
(CHASSIS)
[MIC B BOARD]
CN401
E, PX, AUSTRALIAN MODEL
Ⓒ (See page 15)
TO AUDIO BOARD CN101
(See page 15) Ⓑ
TO AUDIO BOARD CN102
CN201 8P
Q6
Q5
Q7
R-REC
L-REC
L-COM
GND
R-COM
CN202 11P
R-SUR
L-SUR
L-EQ
GND
R-EQ
+7V
K.PON
CS
DATA
CLOCK
IC206
BUFFER
IC206 (1/2) M5218AP-22
Q257-260 SWITCH
Q257 2SA1346
Q258 2SA1346
Q259 2SA1346
Q260 2SC3400
IC205
SURROUND SWITCH
IC206 (2/2) M5218AP-22
IC205 MC14066BCP
VDD
VSS
IC203
EQ SWITCH
IC203 MC14066BCP
Q255 SWITCH
Q255 2SC3400
IC202
OUTPUT SELECT
IC202 MC14066BCP
Q253 2SA1346 TC REC LEVEL CONT
Q261 2SA1346 VIDEO/MD REC OUT ON/OFF
Q254 2SC3400
IC201
INPUT SELECT
IC201 MC14052BCP
CN206 11P
SYSTEM CONTROL 1
C250 0.1
(CHASSIS)
Q250 2SC3400
Q250-252 INVERTER
(+7V)
(-7V)
[MAIN A BOARD]
05

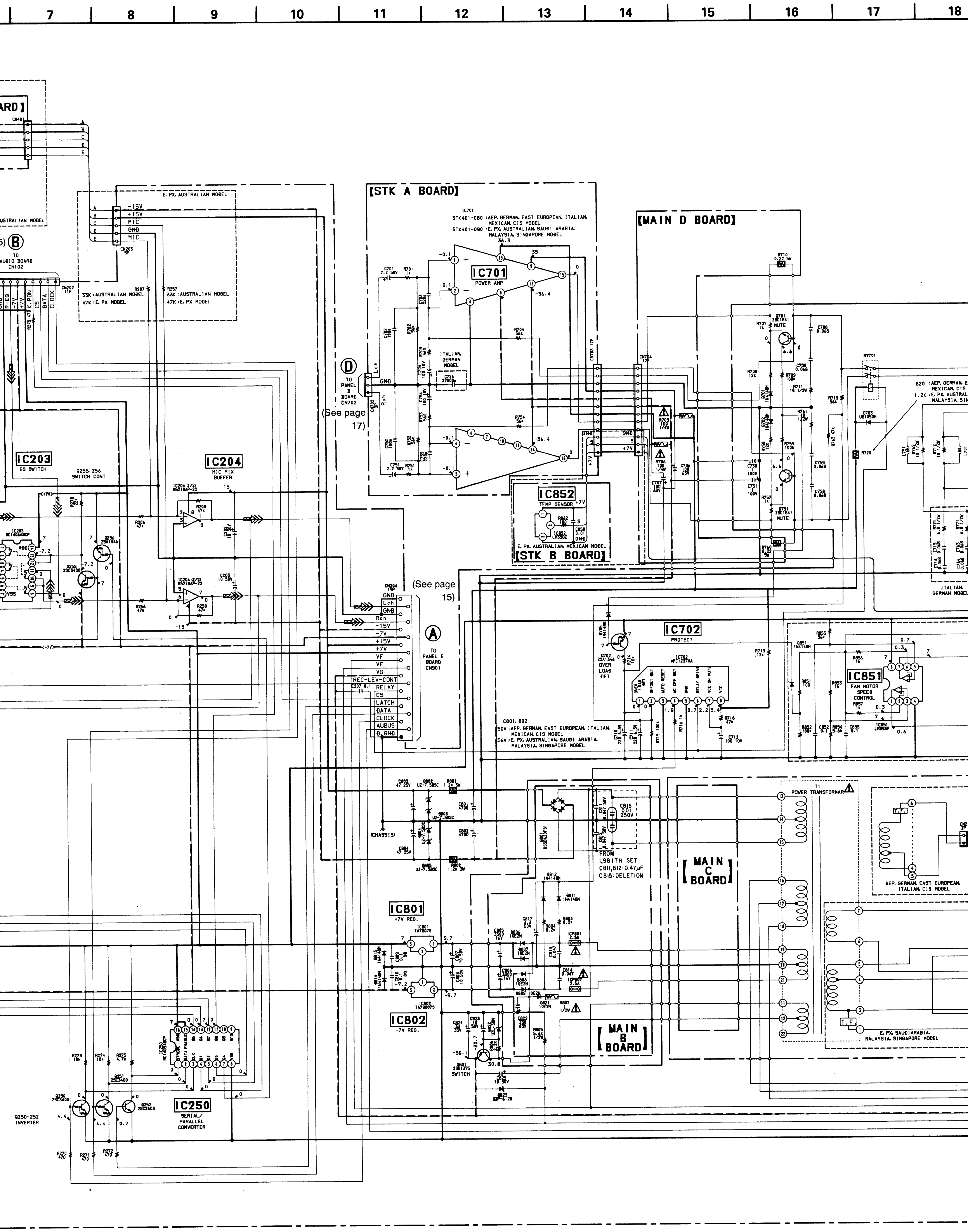
• Circuit Boards Location



PANEL D board
PANEL E board
PANEL C board
HP B board
HP A board
PANEL B board
PANEL A board
MIC B board (E, PX, Australian model)
MIC A board (E, PX, Australian model)



VS board (E, PX model)
TS board (Australian model)
STK B board (E, PX, Australian model)
MAIN C board
STK A board
MAIN B board
MAIN A board
AUDIO board
MAIN D board


7
8
9
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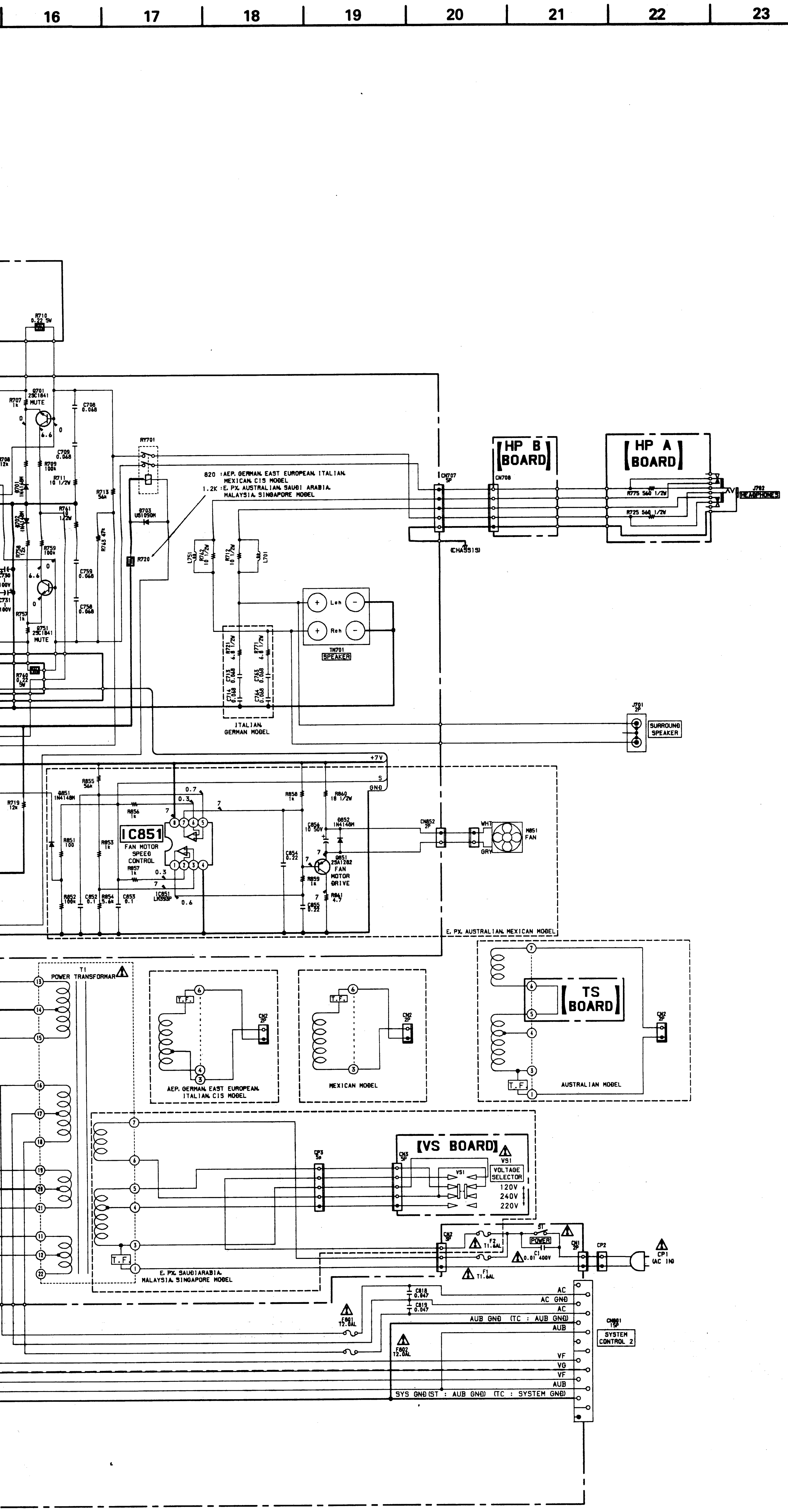
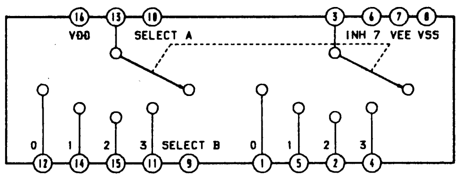
11
12
13
14
15
16
17
18
RD]
CN401
E. PX. AUSTRALIAN MODEL
USTRALIAN MODEL
B
TO AUDIO BOARD CN102
-15V
+15V
MIC
GND
MIC
CN203 5P
CN202 11P
R-EQ
-7V
+7V
K.PON
CS
DATA
CLOCK
33K : AUSTRALIAN MODEL
47K : E. PX MODEL
[STK A BOARD]
IC701
STK401-080 : AEP. GERMAN. EAST EUROPEAN. ITALIAN. MEXICAN. CIS MODEL
STK401-090 : E. PX. AUSTRALIAN. SAUDI ARABIA. MALAYSIA. SINGAPORE MODEL
IC701
POWER AMP
ITALIAN. GERMAN MODEL
D
TO PANEL B BOARD CN702
(See page 17)
Lch
GND
Rch
CN703 12P
CN704 12P
[MAIN D BOARD]
Q701 2SC1841 MUTE
Q751 2SC1841 MUTE
RY701
820 : AEP. GERMAN. E. MEXICAN. CIS
1.2K : E. PX. AUSTRAL. MALAYSIA. SIN
ITALIAN. GERMAN MODEL
IC852
TEMP SENSOR
E. PX. AUSTRALIAN. MEXICAN MODEL
[STK B BOARD]
IC203
EQ SWITCH
Q255, 256
SWITCH CONT
IC204
MIC MIX BUFFER
CN204 19P
(See page 15)
A
TO PANEL E BOARD CN901
GND
Lch
GND
Rch
-15V
-7V
+15V
+7V
VF
VF
VG
REC-LEV-CONT
RELAY
CS
LATCH
DATA
CLOCK
AUBUS
GND
IC702
PROTECT
Q702 2SA1546 OVER LOAD DET
OVER LOAD DET
OFFSET DET
AUTO RESET
AC OFF DET
GND
RELAY DRIVE
VCC ON MUTE
VCC
C801, 802
50V : AEP. GERMAN. EAST EUROPEAN. ITALIAN. MEXICAN. CIS MODEL
56V : E. PX. AUSTRALIAN. SAUDI ARABIA. MALAYSIA. SINGAPORE MODEL
IC851
FAN MOTOR SPEED CONTROL
T1
POWER TRANSFORMAR
(CHASSIS)
FROM 1,981TH SET
C811,812 : 0.47µF
C815 : DELETION
MAIN C BOARD
AEP. GERMAN. EAST EUROPEAN. ITALIAN. CIS MODEL
T.F.
E. PX. SAUDIARABIA. MALAYSIA. SINGAPORE MODEL
IC801
+7V REG.
IC802
-7V REG.
MAIN B BOARD
Q801 2SB1375 SWITCH
IC250
SERIAL/PARALLEL CONVERTER
Q250-252 INVERTER

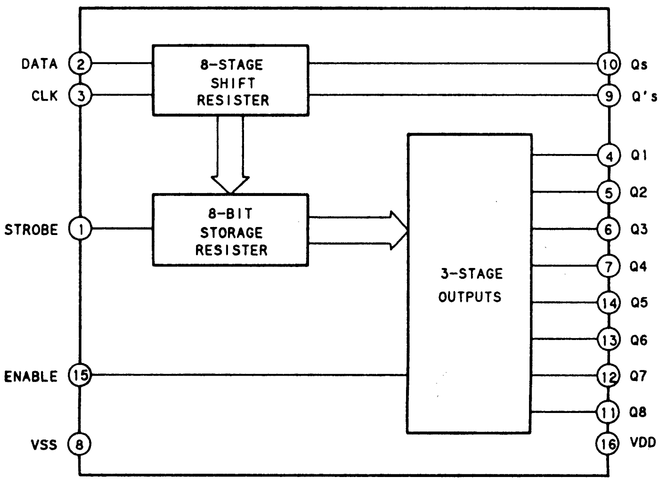

16
17
18
19
20
21
22
23
24
25
26
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
R710 0.22 5W
Q701 2SC1841 MUTE
R707 1k
C708 0.068
C709 0.068
R709 100k
R711 10 1/2W
R761 10 1/2W
R713 56k
RY701
Q703 US1090M
R720
820 :AEP, GERMAN, EAST EUROPEAN, ITALIAN, MEXICAN, CIS MODEL
1.2K :E, PX, AUSTRALIAN, SAUDI ARABIA, MALAYSIA, SINGAPORE MODEL
R758 12k
R759 100k
C759 0.068
C758 0.068
R757 1k
Q751 2SC1841 MUTE
R760 0.22 5W
L751
R762 10 1/2W
R712 10 1/2W
L701
R721 6.8 1/2W
R771 6.8 1/2W
C714 0.068
C715 0.068
C764 0.068
C763 0.068
ITALIAN, GERMAN MODEL
Lch
Rch
TM701 SPEAKER
CN707 5P
(CHASSIS)
HP B BOARD
CN708
HP A BOARD
R775 560 1/2W
R725 560 1/2W
J702 HEADPHONES
J701 2P
SURROUND SPEAKER
+7V
S
GND
R719 12k
R855 56k
D851 1N4148M
0.7
0.3
R856 1k
R858 1k
R860 10 1/2W
D852 1N4148M
C856 10 50V
IC851 FAN MOTOR SPEED CONTROL
R857 1k
R851 100
R853 1k
C854 0.22
Q851 2SA1202 FAN MOTOR DRIVE
R859 1k
C855 0.22
R861 4.7
R852 100k
C852 0.1
R854 5.6k
C853 0.1
IC851 LM393P
0.6
CN852 2P
WHT
GRY
M851 FAN
E, PX, AUSTRALIAN, MEXICAN MODEL
T1 POWER TRANSFORMAR
T.F
CN2 2P
AEP, GERMAN, EAST EUROPEAN, ITALIAN, CIS MODEL
MEXICAN MODEL
TS BOARD
AUSTRALIAN MODEL
CP3 5P
CN3 5P
VS BOARD
VS1 VOLTAGE SELECTOR
120V
240V
220V
E, PX, SAUDIARABIA, MALAYSIA, SINGAPORE MODEL
CN2 3P
F2 T1.6AL
S1 POWER
CN1 2P
C1 0.01 400V
F1 T1.6AL
CP2
CP1 (AC IN)
C818 0.047
C819 0.047
F801 T2.5AL
F802 T2.5AL
AC
AC GND
AUB GND (TC : AUB GND)
AUB
VF
VG
SYS GND (ST : AUB GND) (TC : SYSTEM GND)
CN801 15P
SYSTEM CONTROL 2

- **IC Block Diagrams**

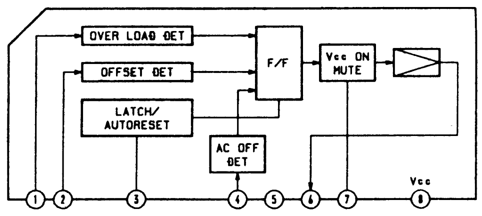
IC201 MC14052BCP


VDD
SELECT A
INH
VEE
VSS
SELECT B
0
1
2
3

IC250 TC4094BP


DATA
CLK
STROBE
ENABLE
VSS
8-STAGE SHIFT RESISTER
8-BIT STORAGE RESISTER
3-STAGE OUTPUTS
Qs
Q's
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
VDD

IC702 μPC1237HA


OVER LOAD DET
OFFSET DET
LATCH/ AUTORESET
AC OFF DET
F/F
Vcc ON MUTE
Vcc

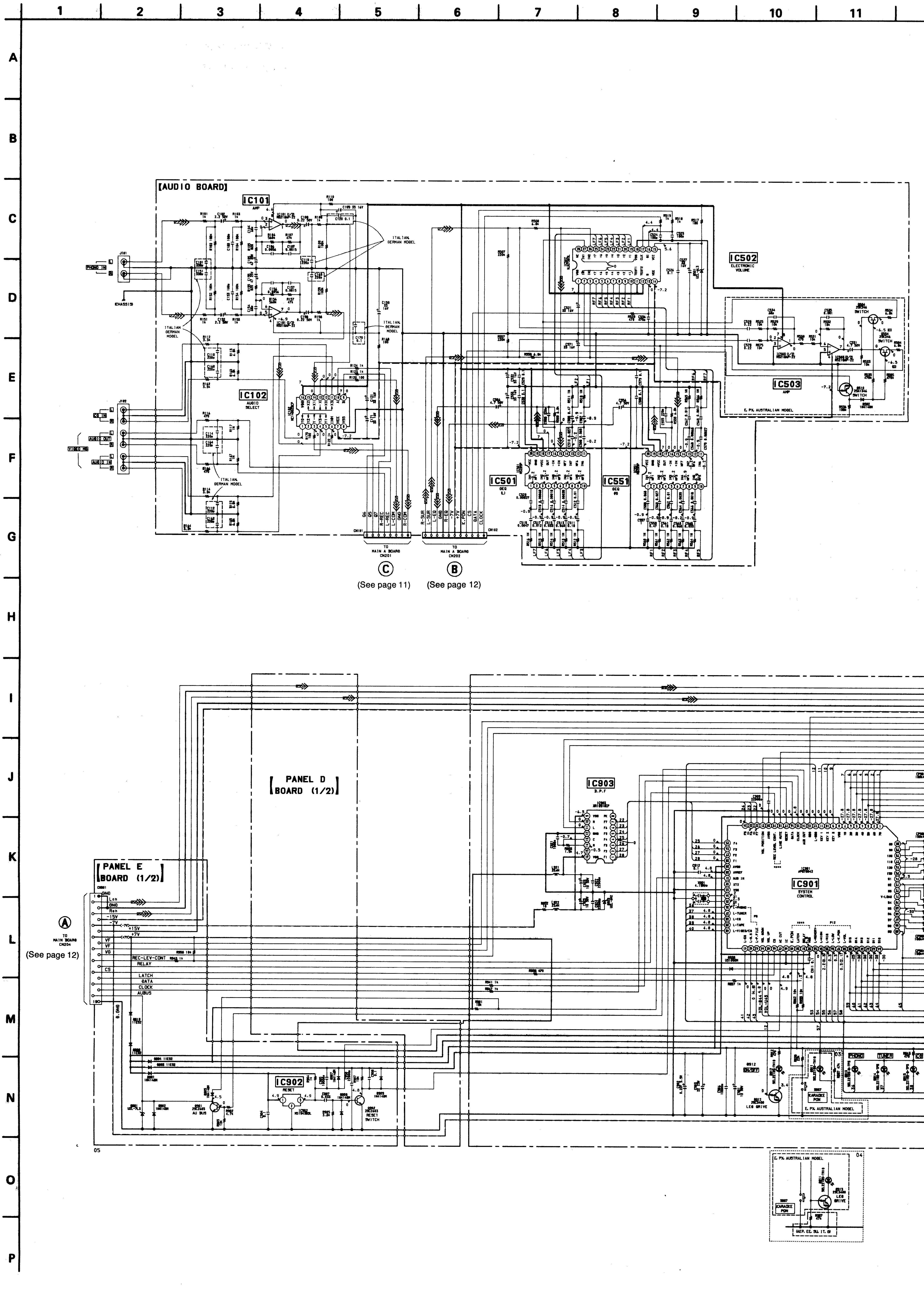
Note

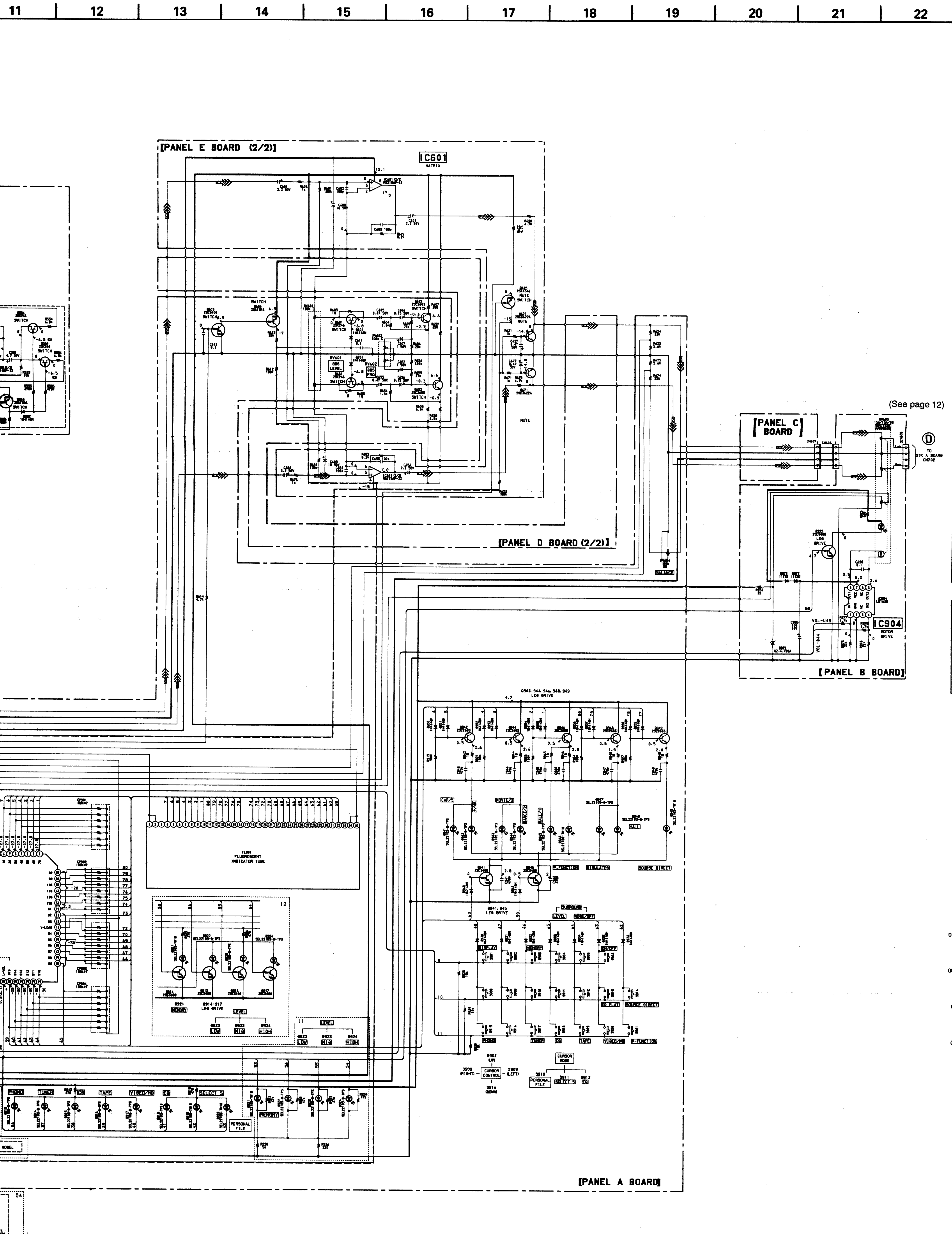
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬▬ : B + Line.
- ▬ ▬ ▬ : B − Line.
- ☐ : panel designation.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇛ : PHONO

3-4. PANEL/AUDIO SECTION SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
[AUDIO BOARD]
IC101
AMP
ITALIAN, GERMAN MODEL
PHONO IN
CHASSIS
IC102
AUDIO SELECT
CD IN
AUDIO OUT
VIDEO IN
AUDIO IN
IC501
GEQ
(L)
IC551
GEQ
(R)
IC502
ELECTRONIC VOLUME
IC503
AMP
SWITCH
E, FX, AUSTRALIAN MODEL
CN101
TO MAIN A BOARD CN201
Ⓒ
(See page 11)
CN102
TO MAIN A BOARD CN202
Ⓑ
(See page 12)
R-SUR
L-SUR
GND
R-EQ
+7V
K.PON
CS
DATA
CLOCK
R-REC
L-REC
L-COM
R-COM
[PANEL D BOARD (1/2)]
[PANEL E BOARD (1/2)]
Ⓐ
TO MAIN BOARD CN204
(See page 12)
CN901
GND
Lch
Rch
-15V
-7V
+15V
+7V
VF
VG
CS
REC-LEV-CONT
RELAY
LATCH
DATA
CLOCK
AUBUS
IC903
B.P.F
IC901
SYSTEM CONTROL
IC902
RESET
AU BUS
RESET SWITCH
ON/OFF
LED DRIVE
KARAOKE PON
PHONO
TUNER
E, FX, AUSTRALIAN MODEL
(AEP, EE, SL, IT, G)
05
04
03


11
12
13
14
15
16
17
18
19
20
21
22
[PANEL E BOARD (2/2)]
IC601
MATRIX
SWITCH
MUTE
SWITCH
RV601
BBE LEVEL
RV602
BBE FRQ
[PANEL D BOARD (2/2)]
BALANCE
(See page 12)
[PANEL C BOARD]
CN487
CN404
Ⓓ
TO STK A BOARD CN702
LED DRIVE
VOL-U45
VOL-044
IC904
MOTOR DRIVE
[PANEL B BOARD]
FL901
FLUORESCENT INDICATOR TUBE
Q942, 944, 946, 948, 949
LED DRIVE
CAR/S
MOVIE/S
DANCE/2
HALL/1
HALL
P.FUNCTION
SIMULATED
SOURSE DIRECT
Q941, 945
LED DRIVE
SURROUND
LEVEL
MODE/OFF
DISPLAY
MEMORY
ON/OFF
EQ FLAT
SOURCE DIRECT
PHONO
TUNER
CD
TAPE
VIDEO/MD
P-FUNCTION
S902 (UP)
S909 (RIGHT)
CURSOR CONTROL
S909 (LEFT)
S916 (DOWN)
CURSOR MODE
S910 PERSONAL FILE
S911 SELECT 5
S912 EQ
Q914-917
LED DRIVE
LEVEL
Q922 LOW
Q923 MID
Q924 HIGH
MEMORY
PERSONAL FILE
SELECT 5
[PANEL A BOARD]

• I

AU
IC1

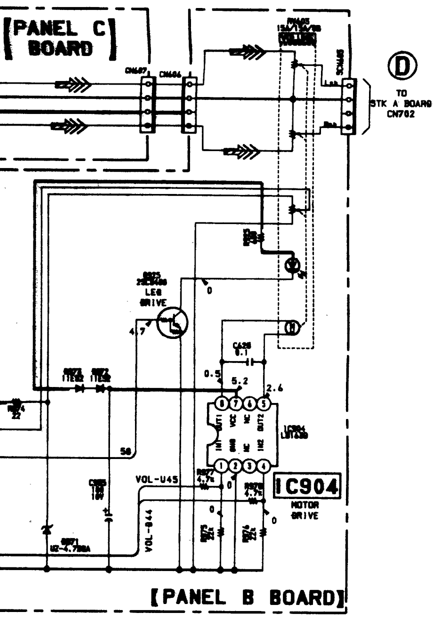
IC

IC5

IC

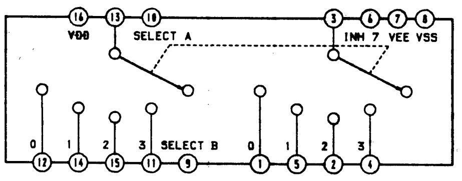
IC

(See page 12)

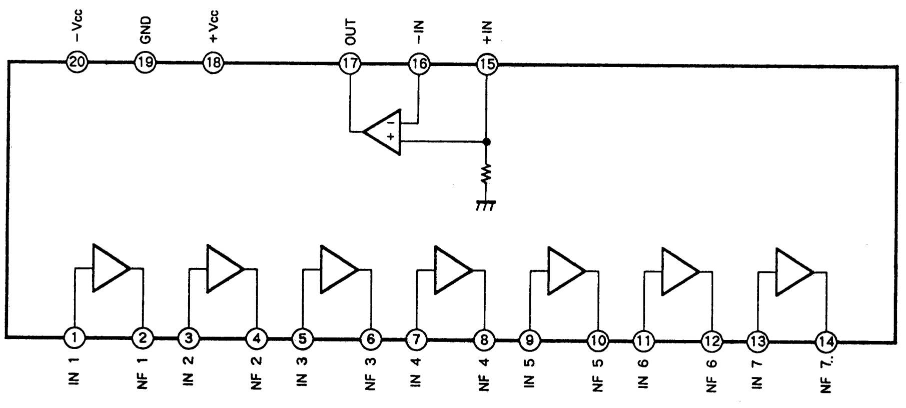

[PANEL C] BOARD
D
TO BTK A BOARD CN702
LED DRIVE
IC904
MOTOR DRIVE
VOL-U45
VOL-B44
[PANEL B BOARD]

- **IC Block Diagrams**

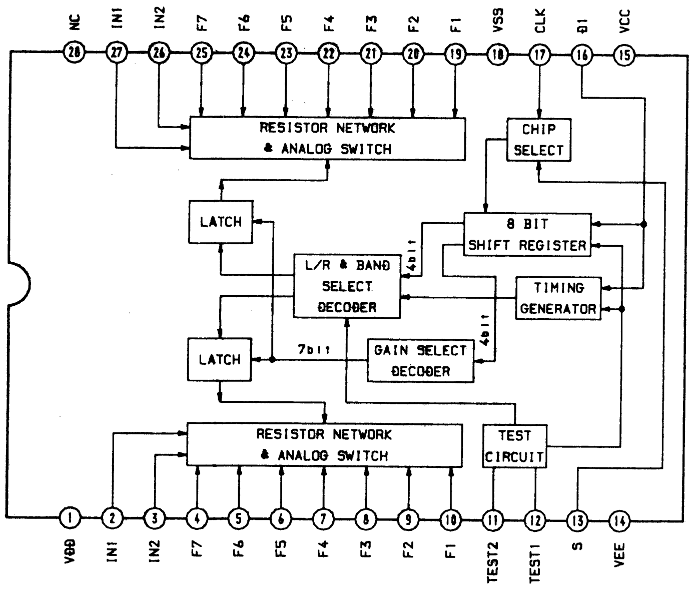
AUDIO BOARD
IC102 MC14052BCP


VDD
SELECT A
INH 7 VEE VSS
0 1 2 3 SELECT B 0 1 2 3

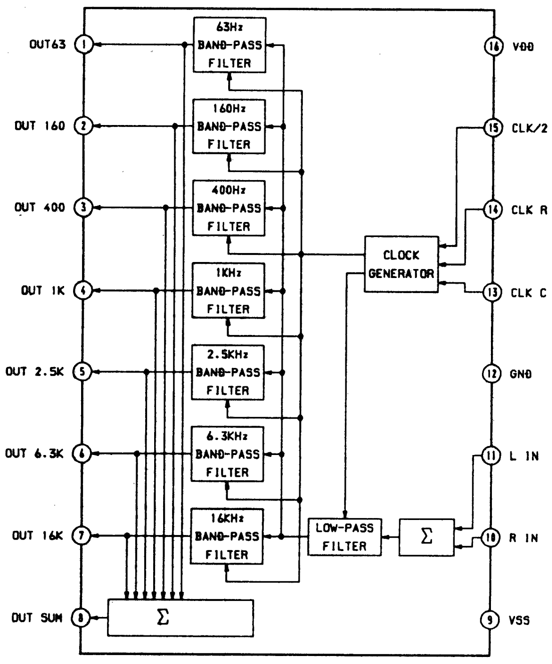
IC501, 551 M5289P


-Vcc
GND
+Vcc
OUT
-IN
+IN
IN 1
NF 1
IN 2
NF 2
IN 3
NF 3
IN 4
NF 4
IN 5
NF 5
IN 6
NF 6
IN 7
NF 7

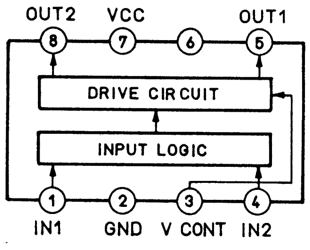
IC502 NJU7305L


NC
IN1
IN2
F7
F6
F5
F4
F3
F2
F1
VSS
CLK
DI
VCC
RESISTOR NETWORK & ANALOG SWITCH
CHIP SELECT
LATCH
8 BIT SHIFT REGISTER
L/R & BAND SELECT DECODER
4bit
TIMING GENERATOR
LATCH
7bit
GAIN SELECT DECODER
4bit
RESISTOR NETWORK & ANALOG SWITCH
TEST CIRCUIT
VDD
IN1
IN2
F7
F6
F5
F4
F3
F2
F1
TEST2
TEST1
S
VEE

IC903 XR1091DCP


OUT63
OUT 160
OUT 400
OUT 1K
OUT 2.5K
OUT 6.3K
OUT 16K
OUT SUM
63Hz BAND-PASS FILTER
160Hz BAND-PASS FILTER
400Hz BAND-PASS FILTER
1KHz BAND-PASS FILTER
2.5KHz BAND-PASS FILTER
6.3KHz BAND-PASS FILTER
16KHz BAND-PASS FILTER
Σ
CLOCK GENERATOR
LOW-PASS FILTER
Σ
VDD
CLK/2
CLK R
CLK C
GND
L IN
R IN
VSS

IC904 LB1639


OUT2
VCC
OUT1
DRIVE CIRCUIT
INPUT LOGIC
IN1
GND
V CONT
IN2

Note

- ○—— : parts extracted from the component side.
- △ : internal component.

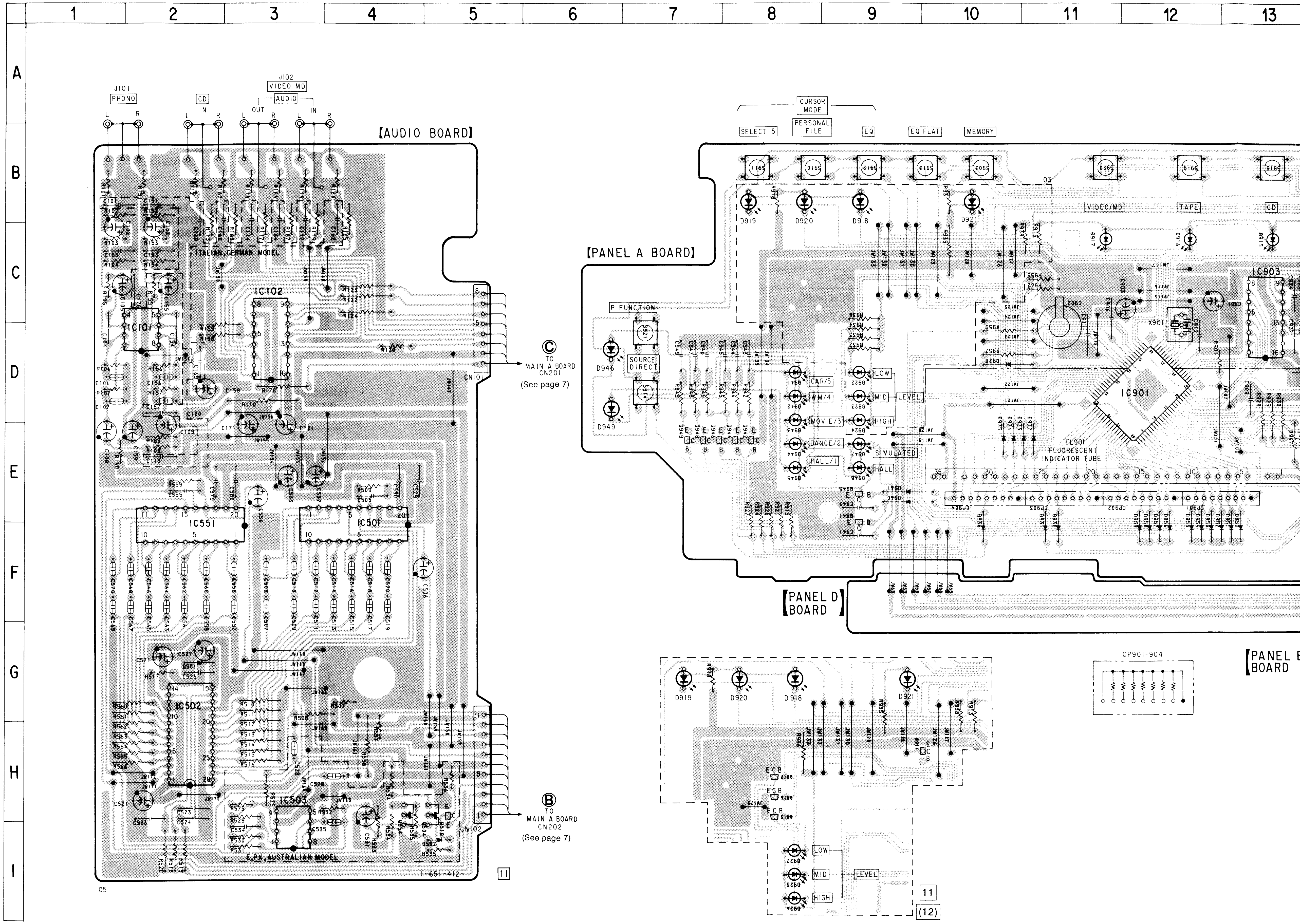
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B + Line.
- ▬ ▬ ▬ : B − Line.
- ☐ : panel designation.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇛ : PHONO

3-5. PANEL/AUDIO SECTION PRINTED WIRING BOARDS • See page 24 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D501	G-2	D960	E-9
D502	I-5	D961	E-9
D601	C-16	D971	C-17
D651	C-16	D972	C-18
D901	I-14	D973	C-18
D902	I-14	D980	H-15
D903	H-15	D981	H-15
D904	G-15		
D905	H-14	IC101	C-2
D907	H-15	IC102	C-3
D908	G-15	IC501	E-4
D909	G-15	IC502	G-2
D910	H-15	IC503	H-3
D911	B-17	IC551	E-2
D912	D-16	IC601	I-16
D913	C-15	IC901	D-11
D914	C-14	IC902	H-14
D915	C-13	IC903	C-13
D916	C-12	IC904	C-19
D917	C-11		
D918	B-9	Q504	H-4
D919	B-8	Q510	H-5
D920	B-8	Q554	H-4
D921	B-10	Q601	C-17
D922	D-9	Q602	C-16
D923	D-9	Q603	C-15
D924	D-9	Q604	C-16
D928	D-10	Q605	G-16
D929	C-13	Q621	G-16
D930	E-11	Q651	C-16
D931	E-11	Q652	C-15
D932	E-11	Q671	G-17
D933	E-11	Q901	I-14
D934	E-10	Q902	G-14
D935	E-10	Q912	D-16
D936	E-10	Q913	A-18
D941	D-8	Q914	H-9
D942	D-8	Q915	H-8
D943	D-8	Q916	H-8
D944	E-8	Q917	H-8
D945	E-8	Q925	C-17
D946	D-6	Q941	E-9
D947	E-9	Q942	E-6
D948	E-9	Q944	E-8
D949	D-6	Q945	E-9
D950	E-12	Q946	E-7
D951	E-12	Q948	E-7
D952	E-12	Q949	E-7
D953	E-12		
D954	E-12		
D955	E-12		
D956	E-12		
D957	E-12		
D958	E-12		
D959	E-11		


1
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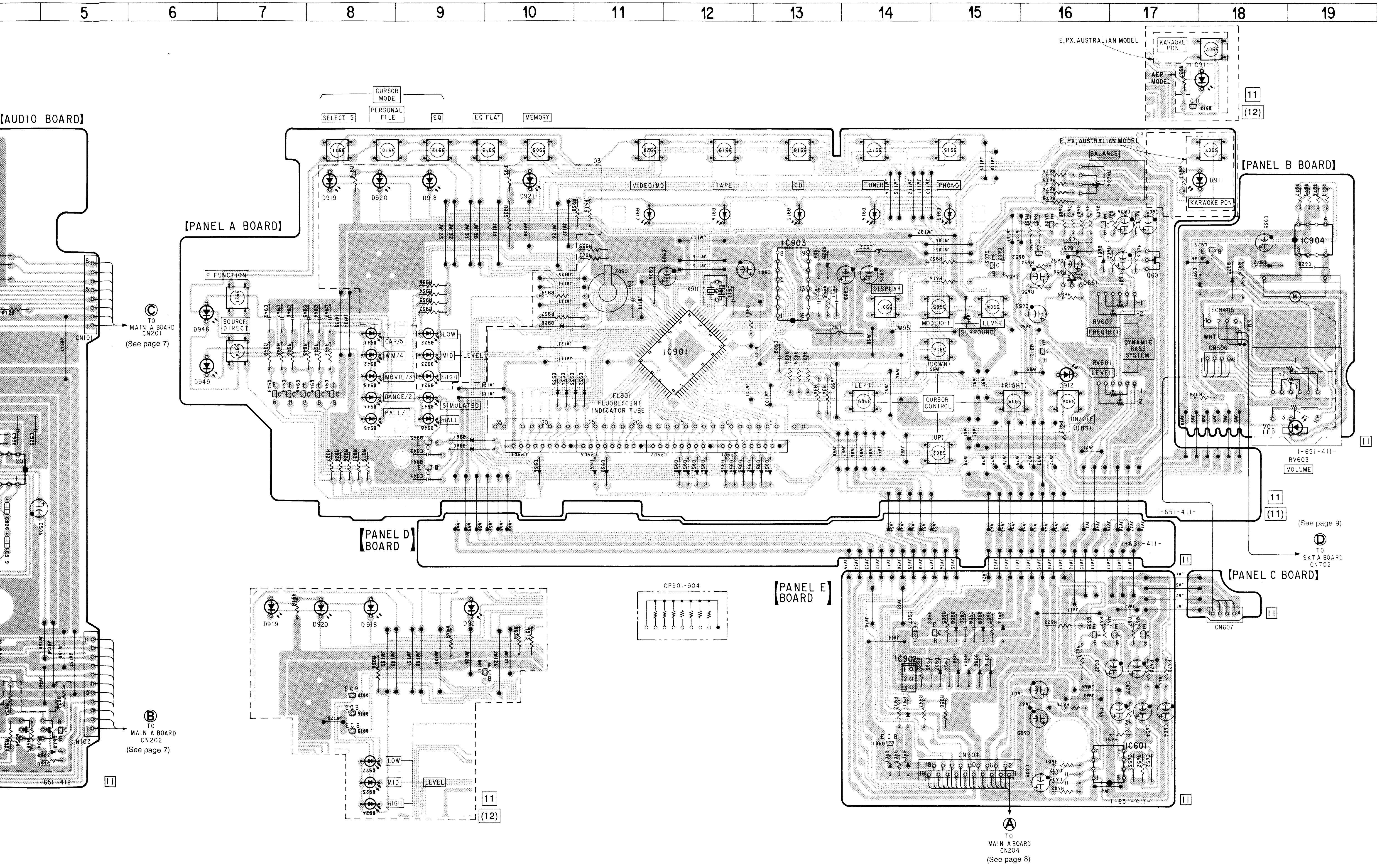
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J101
PHONO
CD
IN
J102
VIDEO MD
AUDIO
OUT
IN
L
R
【AUDIO BOARD】
ITALIAN,GERMAN MODEL
IC101
IC102
IC551
IC501
IC502
IC503
CN101
CN102
Ⓒ
TO
MAIN A BOARD
CN201
(See page 7)
Ⓑ
TO
MAIN A BOARD
CN202
(See page 7)
E,PX,AUSTRALIAN MODEL
1-651-412-
11
05
CURSOR
MODE
SELECT 5
PERSONAL
FILE
EQ
EQ FLAT
MEMORY
VIDEO/MD
TAPE
CD
【PANEL A BOARD】
P FUNCTION
SOURCE
DIRECT
D946
D949
D919
D920
D918
D921
CAR/5
WM/4
MOVIE/3
DANCE/2
HALL/1
LOW
MID
HIGH
LEVEL
SIMULATED
HALL
IC901
IC903
X901
FL901
FLUORESCENT
INDICATOR TUBE
【PANEL D
BOARD】
CP901-904
【PANEL B
BOARD
11
(12)


5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
【AUDIO BOARD】
【PANEL A BOARD】
【PANEL B BOARD】
【PANEL C BOARD】
【PANEL D BOARD】
【PANEL E BOARD】
CURSOR MODE
PERSONAL FILE
SELECT 5
EQ
EQ FLAT
MEMORY
VIDEO/MD
TAPE
CD
TUNER
PHONO
P FUNCTION
SOURCE DIRECT
CAR/5
WM/4
MOVIE/3
DANCE/2
HALL/1
LOW
MID
HIGH
LEVEL
SIMULATED
HALL
IC901
IC902
IC903
IC904
IC601
FL901 FLUORESCENT INDICATOR TUBE
X901
DISPLAY
MODE/OFF
LEVEL
SURROUND
(DOWN)
(LEFT)
(RIGHT)
(UP)
CURSOR CONTROL
ON/OFF (DBS)
RV602 FREQ(HZ)
RV601 LEVEL
DYNAMIC BASS SYSTEM
BALANCE
RV604
E,PX,AUSTRALIAN MODEL
KARAOKE PON
AEP MODEL
D911
S907
SCN605
CN606
WHT
PNK
VOL LED
RV603
VOLUME
1-651-411-
1-651-412-
CN101
CN102
CN607
CN901
CP901-904
Ⓒ TO MAIN A BOARD CN201 (See page 7)
Ⓑ TO MAIN A BOARD CN202 (See page 7)
Ⓐ TO MAIN A BOARD CN204 (See page 8)
Ⓓ TO SKT A BOARD CN702 (See page 9)
11
(12)
(11)
D919
D920
D918
D921
D946
D949
D912

3-6. IC PIN DESCRIPTION

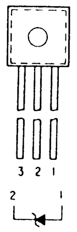
PANEL A BOARD IC901 μPD78042GF-057-3B9

Pin No.	Pin Name	I/O	Description
1	7G	O	FL digit 7
2	6G	O	FL digit 6
3	5G	O	FL digit 5
4	4G	O	FL digit 4
5	3G	O	FL digit 3
6	2G	O	FL digit 2
7	1G	O	FL digit 1
8	VDD	–	VDD
9	KEY 3	I	KEY SCAN INPUT 3
10	KEY 2	I	KEY SCAN INPUT 2
11	KEY 1	I	KEY SCAN INPUT 1
12	L DBS	O	LED (DBS)
13	DBS	O	DBS control
14	AUB OUT	O	AU BUS OUTPUT
15	CLOCK	O	serial CLOCK line (NJU7305)
16	DATA	O	serial DATA line (NJU7305)
17	$\overline{\text{RESET}}$	I	RESET
18	LINE MUTE	O	(open-drain) LINE MUTE OUTPUT (Act. "H")
19	REC LEVEL CONT.	O	(open-drain) REC level control (EQ high → "L")
20	AVSS	–	GND
21	VOL POSITION	I	volume position
22	F7	I	frequency 7 for speana
23	F6	I	frequency 6 for speana
24	F5	I	frequency 5 for speana
25	F4	I	frequency 4 for speana
26	F3	I	frequency 3 for speana
27	F2	I	frequency 2 for speana
28	F1	I	frequency 1 for speana
29	AVDD	I	VDD
30	AVREF	I	VDD (A/D reference)
31	AUB IN	I	AU BUS IN
32	XT2	–	N.C
33	VSS	–	GND
34	X1	I	crystal connection terminal
35	X2	O	system clock oscillation terminal
36	L-PHONO	O	LED (PHONO)
37	L-TUNER	O	LED (TUNER)
38	L-CD	O	LED (CD)
39	L-TAPE	O	LED (TAPE)
40	L-VIDEO/CD	O	LED (VIDEO)
41	L-EQ	O	LED (EQ)
42	L-S.5	O	LED (SELECT5)
43	L-P.FILE	O	LED (P.FILE)
44	VOL DOWN	O	VOLUME DOWN OUTPUT
45	VOL UP	O	VOLUME UP OUTPUT
46	CS	O	CS line (NJU7305)
47	AC OUT	I	AC OUT
48	IC	–	N.C (Vss)
49	K.PON	I	(open-drain) K.PON
50	LATCH	O	(open-drain) LATCH (4094)
51	RELAY	I	(open-drain) RELAY input
52	VDD	–	VDD
53	L-MEMORY	O	LED (MEMORY)
54	L-HIGH	O	LED (HIGH)
55	L-MID	O	LED (MID)
56	L-LOW	O	LED (LOW)
57	L-K.PON	O	LED (karaoke pon)
58	L-VOL	O	LED (volume)
59	S15	O	FL segment 15
60	S14	O	FL segment 14
61	S13	O	FL segment 13
62	S12	O	FL segment 12 (key scan output 7)
63	S11	O	FL segment 11 (key scan output 6)
64	S10	O	FL segment 10 (key scan output 5)
65	S9	O	FL segment 9 (key scan output 4)
66	S8	O	FL segment 8 (key scan output 3)
67	S7	O	FL segment 7 (key scan output 2)
68	S6	O	FL segment 6 (key scan output 1)
69	S5	O	FL segment 5
70	S4	O	FL segment 4
71	V-LOAD	I	POWER SUPPLY FOR PULL DOWN REGISTER
72	S3	O	FL segment 3
73	S2	O	FL segment 2
74	S1	O	FL segment 1
75	13G	O	FL digit 13
76	12G	O	FL digit 12
77	11G	O	FL digit 11
78	10G	O	FL digit 10
79	9G	O	FL digit 9
80	8G	O	FL digit 8

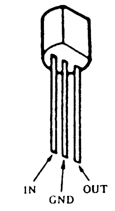
Pin No.	Pin Name	I/O	Description
41	L-EQ	O	LED (EQ)
42	L-S.5	O	LED (SELECT5)
43	L-P.FILE	O	LED (P.FILE)
44	VOL DOWN	O	VOLUME DOWN OUTPUT
45	VOL UP	O	VOLUME UP OUTPUT
46	CS	O	CS line (NJU7305)
47	AC OUT	I	AC OUT
48	IC	–	N.C (Vss)
49	K.PON	I	(open-drain) K.PON
50	LATCH	O	(open-drain) LATCH (4094)
51	RELAY	I	(open-drain) RELAY input
52	VDD	–	VDD
53	L-MEMORY	O	LED (MEMORY)
54	L-HIGH	O	LED (HIGH)
55	L-MID	O	LED (MID)
56	L-LOW	O	LED (LOW)
57	L-K.PON	O	LED (karaoke pon)
58	L-VOL	O	LED (volume)
59	S15	O	FL segment 15
60	S14	O	FL segment 14
61	S13	O	FL segment 13
62	S12	O	FL segment 12 (key scan output 7)
63	S11	O	FL segment 11 (key scan output 6)
64	S10	O	FL segment 10 (key scan output 5)
65	S9	O	FL segment 9 (key scan output 4)
66	S8	O	FL segment 8 (key scan output 3)
67	S7	O	FL segment 7 (key scan output 2)
68	S6	O	FL segment 6 (key scan output 1)
69	S5	O	FL segment 5
70	S4	O	FL segment 4
71	V-LOAD	I	POWER SUPPLY FOR PULL DOWN REGISTER
72	S3	O	FL segment 3
73	S2	O	FL segment 2
74	S1	O	FL segment 1
75	13G	O	FL digit 13
76	12G	O	FL digit 12
77	11G	O	FL digit 11
78	10G	O	FL digit 10
79	9G	O	FL digit 9
80	8G	O	FL digit 8

- **Semiconductor Lead Layouts**

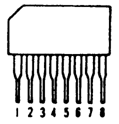
LM35DZ



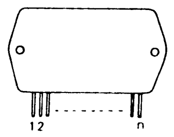
M51943BSL



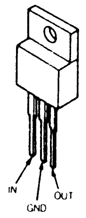
NJM2068L-D
μPC1237HA



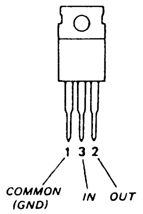
STK-401-080
STK-401-090



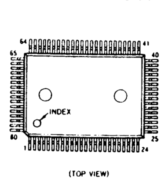
TA7807S



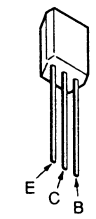
TA79007S


1 3 2
COMMON (GND)
IN
OUT

μPD78042GF-057-3B9


64
41
65
40
INDEX
80
25
1
24
(TOP VIEW)

DTA-124ES
DTC124ES
2SC2603-EF
2SC3622A-LK



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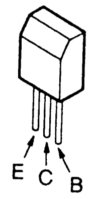

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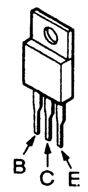

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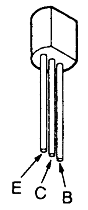
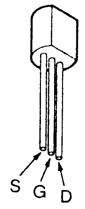
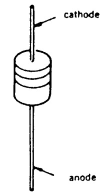


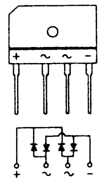
2SK246-GR



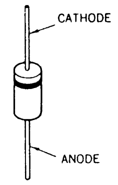
HZS30-2L
UZ-4.7BSA
11ES2


cathode
anode

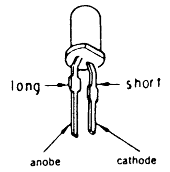
RBV-602-01



UZL-6L3
UZL-6M2
UZL-7L3
UZP-6.2B
UZ-7.5BSC
1N4148M
1S1585
10E2N


CATHODE
ANODE

SEL2210S
SEL2210S-CD


long
short
anobe
cathode

SECTION 4
EXPLODED VIEWS

NOTE:

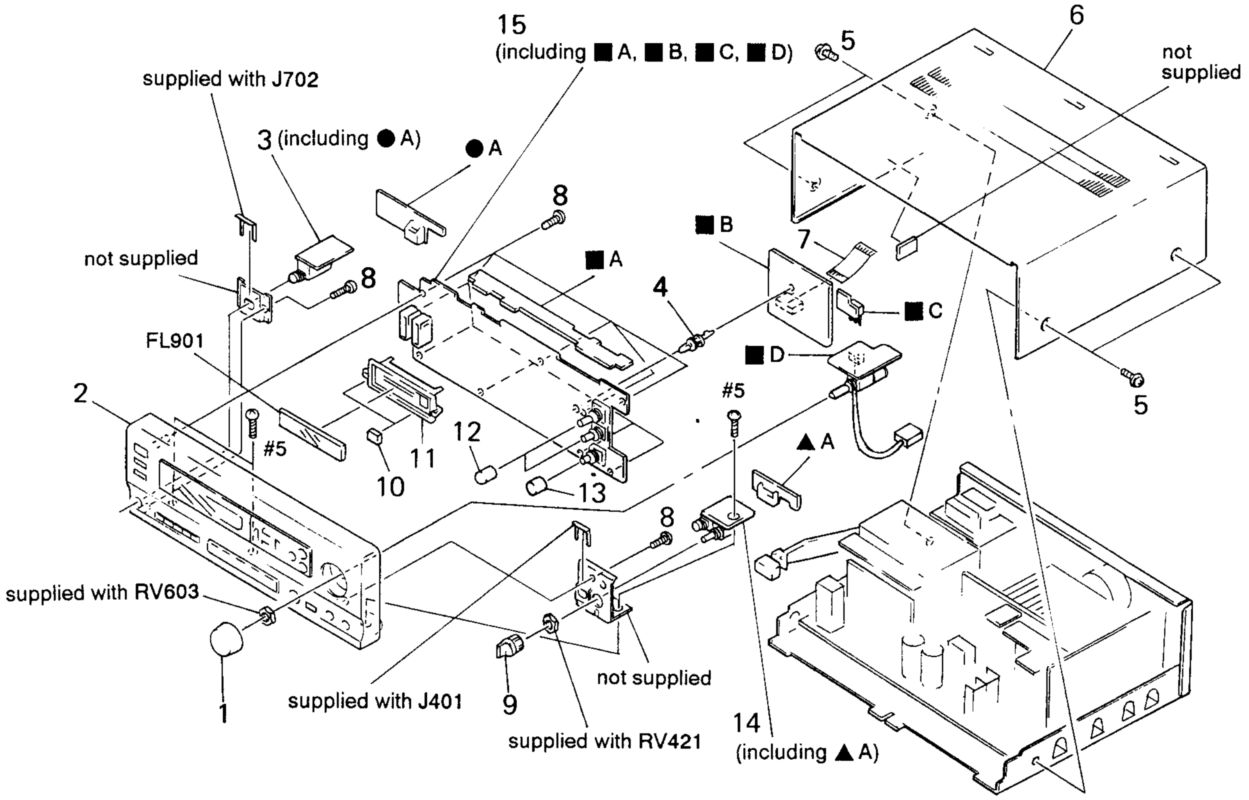
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Abbreviation

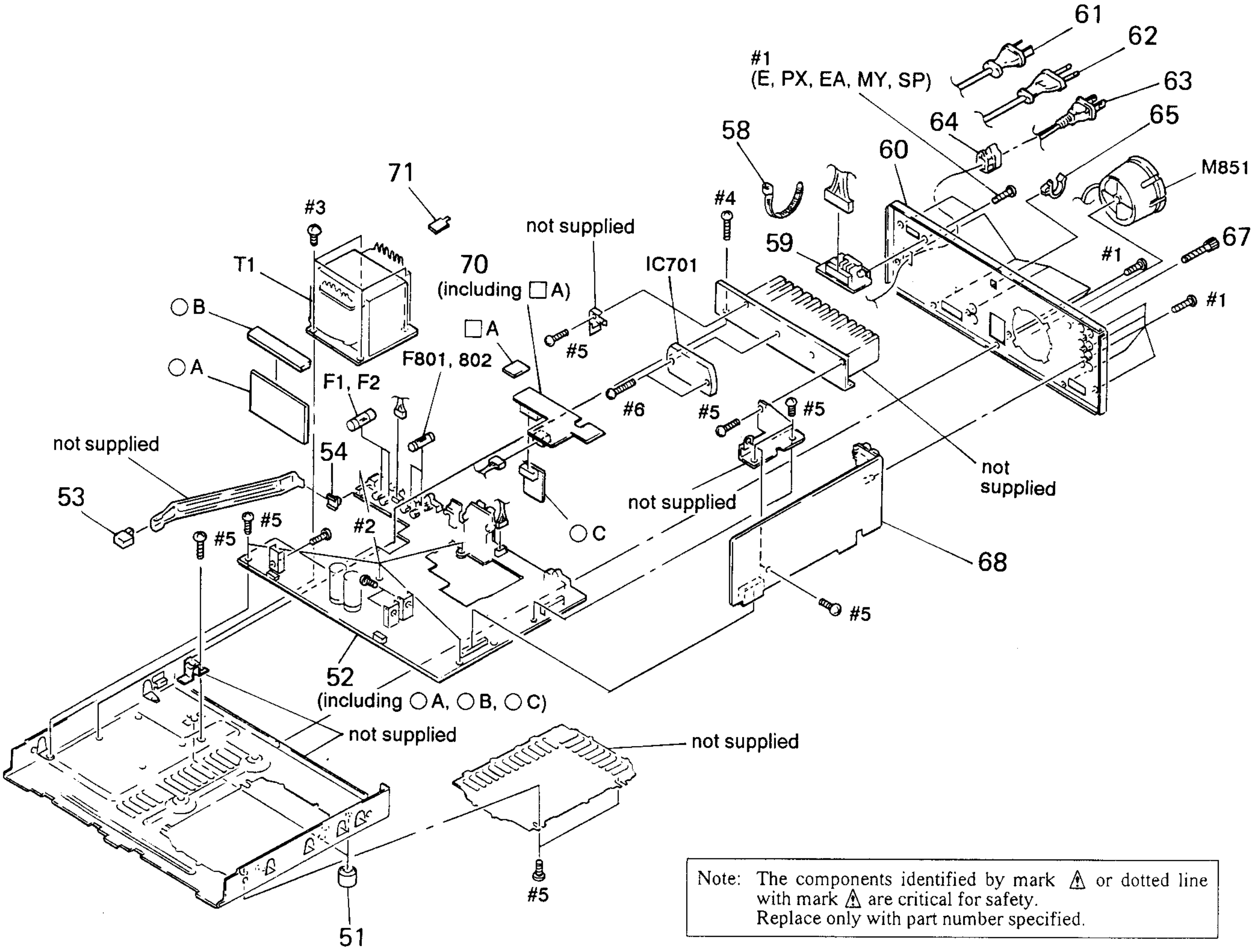
AU: Australian G: German EA: Saudi Arabia EE: East European IT: Italian MX: Mexican
MY: Malaysia SP: Singapore E2 model: 120V AC E3 model: 240V AC E4 model: 120-240V AC

(1) FRONT PANEL SECTION


15
(including ■A, ■B, ■C, ■D)
5
6
not supplied
supplied with J702
3 (including ●A)
●A
8
■B
7
not supplied
8
■A
4
■C
FL901
■D
#5
2
12
#5
5
11
10
13
▲A
8
supplied with RV603
not supplied
1
supplied with J401
9
supplied with RV421
14
(including ▲A)

Ref. No.	Part No.	Description	Remark
1	X-4944-655-1	KNOB (VOL) ASSY	
2	X-4944-651-1	PANEL ASSY, FRONT (AEP, G, EE, IT, CIS)	
2	X-4944-657-1	PANEL ASSY, FRONT (AU, E2, MX, PX, E4)	
2	X-4944-658-1	PANEL ASSY, FRONT (EA, E3, MY, SP)	
3	1-651-414-11	HP BOARD	
4	4-943-687-01	HOLDER, PC BOARD	
5	3-363-099-01	SCREW (CASE 3 TP2)	
6	4-949-912-71	CASE (AEP, G, EE, IT, CIS)	
6	4-949-912-91	CASE (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
7	1-765-151-11	WIRE (FLAT TYPE) (19 CORE)	
8	4-951-620-01	SCREW (2.6X8), +BVTP	
9	4-950-652-01	KNOB (DIA. 12), ROUND	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
* 10	4-921-941-21	CUSHION (FL)	
* 11	4-923-103-01	HOLDER, FL TUBE	
12	4-955-744-21	KNOB (BA)	
13	3-349-039-11	KNOB (VOL)	
* 14	1-651-413-11	MIC BOARD (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
* 15	A-4369-456-A	PANEL BOARD, COMPLETE (AEP, G, EE, IT, CIS)	
* 15	A-4369-467-A	PANEL BOARD, COMPLETE	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
FL901	1-517-266-21	INDICATOR TUBE, FLUORESCENT	

(2) CHASSIS SECTION


61
62
#1
(E, PX, EA, MY, SP)
63
64
65
58
60
M851
71
#3
#4
not supplied
67
59
T1
70
(including □A)
IC701
#1
○B
□A
#1
F801, 802
#5
○A
F1, F2
#6
#5
#5
not supplied
54
not
supplied
53
#5
#2
not supplied
#5
○C
68
#5
52
(including ○A, ○B, ○C)
not supplied
not supplied
#5
51

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	4-931-169-01	FOOT	
* 52	A-4369-454-A	MAIN BOARD, COMPLETE	(AEP, EE, CIS)
* 52	A-4369-461-A	MAIN BOARD, COMPLETE	(G, IT)
* 52	A-4369-464-A	MAIN BOARD, COMPLETE	(EA, E2, E3, MY, PX, SP, E4)
* 52	A-4369-481-A	MAIN BOARD, COMPLETE	(AU)
* 52	A-4371-373-A	MAIN BOARD, COMPLETE	(MX)
53	4-964-965-01	BUTTON (POW)	
54	4-866-342-00	JOINT (B), KNOB	
58	4-953-346-01	CLAMP, LEAD	(AEP, G, AU, EE, IT, MX, CIS)
* 59	1-650-410-11	VS BOARD	(E2, E3, PX, EA, MY, SP, E4)
* 60	4-964-974-01	PANEL (B3120), BACK	(AEP, EE, IT, CIS)
* 60	4-964-974-11	PANEL (B3120), BACK	(AEP)
* 60	4-964-974-31	PANEL (B3120), BACK	(G)
* 60	4-964-974-41	PANEL (B3120), BACK	(EA, E2, E3, PX, E4)
* 60	4-964-974-51	PANEL (B3120), BACK	(MY, SP)
* 60	4-964-974-61	PANEL (B3120), BACK	(AU)
* 60	4-964-974-71	PANEL (B3120), BACK	(MX)
⚠61	1-751-355-11	CORD, POWER	(AU)
⚠62	1-575-654-11	CORD, POWER	(AEP, G, EA, EE, IT, MY, SP, CIS)
⚠63	1-575-656-11	CORD, POWER	(E2, E3, E4, MX, PX)
* 64	3-703-244-00	BUSHING (2104), CORD	(AEP, G, AU, EA, EE, IT, MY, SP, CIS)
* 64	3-703-571-11	BUSHING (S) (4516), CORD	(E2, E3, MX, PX, E4)
* 65	4-949-235-01	HOOK	

Ref. No.	Part No.	Description	Remark
67	4-947-010-01	SCREW, FEEDER FIXED	
* 68	A-4369-457-A	AUDIO BOARD, COMPLETE	(AEP, EE, CIS)
* 68	A-4369-463-A	AUDIO BOARD, COMPLETE	(G, IT)
* 68	A-4369-468-A	AUDIO BOARD, COMPLETE	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
* 70	A-4369-455-A	STK BOARD, COMPLETE	(AEP, EE, CIS)
* 70	A-4369-462-A	STK BOARD, COMPLETE	(G, IT)
* 70	A-4369-465-A	STK BOARD, COMPLETE	(AU, EA, E2, E3, MY, PX, SP, E4)
* 70	A-4371-374-A	STK BOARD, COMPLETE	(MX)
* 71	1-652-079-11	TS BOARD	(AU)
⚠F1	1-532-259-00	FUSE, TIME-LAG (T1.6A)	
⚠F2	1-532-259-00	FUSE, TIME-LAG (T1.6A)	(E2, E3, E4, PX, MY, SP)
⚠F801	1-532-203-00	FUSE, TIME-LAG (T2A)	
⚠F802	1-532-203-00	FUSE, TIME-LAG (T2A)	
M851	X-4942-029-1	CASE ASSY, FAN	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
⚠T1	1-423-529-11	TRANSFORMER, POWER	(AEP, G, EE, IT, CIS)
⚠T1	1-423-530-11	TRANSFORMER, POWER	(AU, EA, E2, E3, MY, PX, SP, E4)
⚠T1	1-426-781-11	TRANSFORMER, POWER	(MX)
IC701	8-749-922-94	IC STK-401-080	(AEP, G, EE, IT, MX, CIS)
IC701	8-749-922-95	IC STK-401-090	(AU, EA, E2, E3, MY, PX, SP, E4)

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

AU: Australian
G: German
EA: Saudi Arabia
EE: East European
IT: Italian
MX: Mexican
MY: Malaysia
SP: Singapore
E2 model: 120V AC
E3 model: 240V AC
E4 model: 120-240V AC

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description				Remark
*	A-4369-457-A	AUDIO BOARD, COMPLETE				(AEP, EE, CIS)
		********************				
*	A-4369-463-A	AUDIO BOARD, COMPLETE				(G, IT)
		********************				
*	A-4369-468-A	AUDIO BOARD, COMPLETE				(AU, EA, E2, E3, MX, MY, PX, SP, E4)
		********************				
		< CAPACITOR >				
C101	1-162-288-31	CERAMIC	330PF	10%	50V	(G, IT)
C102	1-126-161-11	ELECT	2.2uF	20%	50V	
C103	1-162-282-31	CERAMIC	100PF	10%	50V	
C104	1-162-219-31	CERAMIC	68PF	5%	50V	
C105	1-124-910-11	ELECT	47uF	20%	50V	
C106	1-130-480-00	MYLAR	0.0056uF	5%	50V	
C107	1-106-347-00	MYLAR	1500PF	5%	200V	
C108	1-124-464-11	ELECT	0.22uF	20%	50V	
C109	1-104-792-51	ELECT	33uF	20%	16V	
C110	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C112	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C114	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C119	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C121	1-104-792-51	ELECT	33uF	20%	16V	
C151	1-162-288-31	CERAMIC	330PF	10%	50V	(G, IT)
C152	1-126-161-11	ELECT	2.2uF	20%	50V	
C153	1-162-282-31	CERAMIC	100PF	10%	50V	
C154	1-162-219-31	CERAMIC	68PF	5%	50V	
C155	1-124-910-11	ELECT	47uF	20%	50V	
C156	1-130-480-00	MYLAR	0.0056uF	5%	50V	
C157	1-106-347-00	MYLAR	1500PF	5%	200V	
C158	1-124-464-11	ELECT	0.22uF	20%	50V	
C159	1-104-792-51	ELECT	33uF	20%	16V	
C160	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C162	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C164	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C169	1-162-286-31	CERAMIC	220PF	10%	50V	(G, IT)
C171	1-104-792-51	ELECT	33uF	20%	16V	
C505	1-162-286-31	CERAMIC	220PF	10%	50V	
C506	1-126-163-11	ELECT	4.7uF	20%	50V	
C507	1-136-177-00	FILM	1uF	5%	50V	
C508	1-136-163-00	FILM	0.068uF	5%	50V	
C509	1-136-173-00	FILM	0.47uF	5%	50V	
C510	1-136-158-00	FILM	0.027uF	5%	50V	
C511	1-136-168-00	FILM	0.18uF	5%	50V	
C512	1-136-153-00	FILM	0.01uF	5%	50V	
C513	1-136-163-00	FILM	0.068uF	5%	50V	
C514	1-130-478-00	MYLAR	0.0039uF	5%	50V	
C515	1-136-159-00	FILM	0.033uF	5%	50V	
C516	1-130-474-00	MYLAR	0.0018uF	5%	50V	
C517	1-136-154-00	FILM	0.012uF	5%	50V	
C518	1-130-469-00	MYLAR	680PF	5%	50V	
C519	1-106-359-00	MYLAR	4700PF	5%	200V	
C520	1-110-340-11	MYLAR	270PF	5%	50V	
C521	1-104-792-51	ELECT	33uF	20%	16V	
C523	1-162-282-31	CERAMIC	100PF	10%	50V	
C524	1-162-282-31	CERAMIC	100PF	10%	50V	
C526	1-164-159-11	CERAMIC	0.1uF		50V	
C527	1-104-792-51	ELECT	33uF	20%	16V	
C528	1-136-169-00	FILM	0.22uF	5%	50V	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
C529	1-164-159-11	CERAMIC	0.1uF		50V	
C530	1-164-159-11	CERAMIC	0.1uF		50V	
C531	1-126-163-11	ELECT	4.7uF	20%	50V	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
C532	1-104-792-51	ELECT	33uF	20%	16V	
C533	1-104-792-51	ELECT	33uF	20%	16V	
C534	1-162-219-31	CERAMIC	68PF	5%	50V	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
C535	1-106-343-00	MYLAR	1000PF	5%	200V	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
C536	1-162-290-31	CERAMIC	470PF	10%	50V	
C555	1-162-286-31	CERAMIC	220PF	10%	50V	
C556	1-126-163-11	ELECT	4.7uF	20%	50V	
C557	1-136-177-00	FILM	1uF	5%	50V	
C558	1-136-163-00	FILM	0.068uF	5%	50V	
C559	1-136-173-00	FILM	0.47uF	5%	50V	
C560	1-136-158-00	FILM	0.027uF	5%	50V	
C561	1-136-168-00	FILM	0.18uF	5%	50V	
C562	1-136-153-00	FILM	0.01uF	5%	50V	

AUDIO

Ref. No.	Part No.	Description	Remark
C563	1-136-163-00	FILM 0.068uF 5% 50V	
C564	1-130-478-00	MYLAR 0.0039uF 5% 50V	
C565	1-136-159-00	FILM 0.033uF 5% 50V	
C566	1-130-474-00	MYLAR 0.0018uF 5% 50V	
C567	1-136-154-00	FILM 0.012uF 5% 50V	
C568	1-130-469-00	MYLAR 680PF 5% 50V	
C569	1-106-359-00	MYLAR 4700PF 5% 200V	
C570	1-110-340-11	MYLAR 270PF 5% 50V	
C571	1-104-792-51	ELECT 33uF 20% 16V	
C578	1-136-169-00	FILM 0.22uF 5% 50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
C579	1-164-159-11	CERAMIC 0.1uF 50V	
C580	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
CN101	1-691-178-11	CONNECTOR (BOARD TO BOARD) 8P	
CN102	1-691-181-11	CONNECTOR (BOARD TO BOARD) 11P	
		< DIODE >	
D501	8-719-000-54	DIODE UZL-6L3	
D502	8-719-987-63	DIODE 1N4148M (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
		< IC >	
IC101	8-759-636-74	IC M5218AP-22	
IC102	8-759-000-48	IC MC14052BCP	
IC501	8-759-633-78	IC M5289P	
IC502	8-759-081-01	IC NJU7305L	
IC503	8-759-636-74	IC M5218AP-22 (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
IC551	8-759-633-78	IC M5289P	
		< JACK >	
J101	1-565-352-11	JACK, PIN 2P (PHONO)	
J102	1-565-320-61	JACK, PIN 6P (CD/VIDEO MD)	
		< TRANSISTOR >	
Q504	8-729-224-62	TRANSISTOR 2SK246-GR (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
Q510	8-729-900-63	TRANSISTOR DTA124ES (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
Q554	8-729-224-62	TRANSISTOR 2SK246-GR (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
		< RESISTOR >	
R101	1-249-417-11	CARBON 1K 5% 1/4W	F
R102	1-249-441-11	CARBON 100K 5% 1/4W	
R103	1-249-417-11	CARBON 1K 5% 1/4W	F
R104	1-249-441-11	CARBON 100K 5% 1/4W	
R105	1-249-416-11	CARBON 820 5% 1/4W	F
R106	1-247-897-11	CARBON 560K 5% 1/4W	
R107	1-249-437-11	CARBON 47K 5% 1/4W	
R108	1-249-417-11	CARBON 1K 5% 1/4W	F
R109	1-249-441-11	CARBON 100K 5% 1/4W	
R110	1-247-807-31	CARBON 100 5% 1/4W	
R112	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R113	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R114	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R115	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R116	1-249-413-11	CARBON 470 5% 1/4W	F
R117	1-247-903-00	CARBON 1M 5% 1/4W	
R120	1-247-807-31	CARBON 100 5% 1/4W	
R122	1-249-417-11	CARBON 1K 5% 1/4W	F
R123	1-249-417-11	CARBON 1K 5% 1/4W	F
R124	1-249-417-11	CARBON 1K 5% 1/4W	F
R151	1-249-417-11	CARBON 1K 5% 1/4W	F
R152	1-249-441-11	CARBON 100K 5% 1/4W	
R153	1-249-417-11	CARBON 1K 5% 1/4W	F
R154	1-249-441-11	CARBON 100K 5% 1/4W	
R155	1-249-416-11	CARBON 820 5% 1/4W	F
R156	1-247-897-11	CARBON 560K 5% 1/4W	
R157	1-249-437-11	CARBON 47K 5% 1/4W	
R158	1-249-417-11	CARBON 1K 5% 1/4W	F
R159	1-249-441-11	CARBON 100K 5% 1/4W	
R160	1-247-807-31	CARBON 100 5% 1/4W	
R162	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R163	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R164	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R165	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R166	1-249-413-11	CARBON 470 5% 1/4W	F
R167	1-247-903-00	CARBON 1M 5% 1/4W	
R170	1-247-807-31	CARBON 100 5% 1/4W	
R507	1-247-887-00	CARBON 220K 5% 1/4W	
R508	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R509	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R510	1-247-903-00	CARBON 1M 5% 1/4W	
R511	1-247-903-00	CARBON 1M 5% 1/4W	
R512	1-247-903-00	CARBON 1M 5% 1/4W	
R513	1-247-903-00	CARBON 1M 5% 1/4W	
R514	1-247-903-00	CARBON 1M 5% 1/4W	
R515	1-247-903-00	CARBON 1M 5% 1/4W	
R516	1-247-903-00	CARBON 1M 5% 1/4W	
R517	1-249-408-11	CARBON 180 5% 1/4W	F
R518	1-249-417-11	CARBON 1K 5% 1/4W	F
R519	1-249-417-11	CARBON 1K 5% 1/4W	F
R520	1-249-413-11	CARBON 470 5% 1/4W	F

Ref. No.	Part No.	Description	Remark
R525	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R529	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R530	1-249-413-11	CARBON 470 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R531	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R532	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R533	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R534	1-249-427-11	CARBON 6.8K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R535	1-247-895-00	CARBON 470K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R536	1-249-441-11	CARBON 100K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R557	1-247-887-00	CARBON 220K 5% 1/4W	
R558	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R559	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R560	1-247-903-00	CARBON 1M 5% 1/4W	
R561	1-247-903-00	CARBON 1M 5% 1/4W	
R562	1-247-903-00	CARBON 1M 5% 1/4W	
R563	1-247-903-00	CARBON 1M 5% 1/4W	
R564	1-247-903-00	CARBON 1M 5% 1/4W	
R565	1-247-903-00	CARBON 1M 5% 1/4W	
R566	1-247-903-00	CARBON 1M 5% 1/4W	
R575	1-249-429-11	CARBON 10K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R584	1-249-427-11	CARBON 6.8K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R585	1-247-895-00	CARBON 470K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

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Ref. No.	Part No.	Description	Remark
*	1-651-414-11	HP BOARD ********	
		HP BOARD (A) ************	
		< CONNECTOR >	
* CN708	1-569-500-11	PIN, CONNECTOR 5P	
		HP BOARD (B) ************	
		< JACK >	
J702	1-507-854-00	JACK, PHONE (HEADPHONES)	
		< RESISTOR >	
R725	1-247-749-11	CARBON 560 5% 1/2W	
R775	1-247-749-11	CARBON 560 5% 1/2W	

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Ref. No.	Part No.	Description	Remark
*	A-4369-454-A	MAIN BOARD, COMPLETE (AEP, EE, CIS) ********************	
*	A-4369-461-A	MAIN BOARD, COMPLETE (G, IT) ********************	
*	A-4369-464-A	MAIN BOARD, COMPLETE (EA, E2, E3, MY, PX, SP, E4) ********************	
*	A-4369-481-A	MAIN BOARD, COMPLETE (AU) ********************	
*	A-4371-373-A	MAIN BOARD, COMPLETE (MX) ********************	
	1-533-293-11	FUSE HOLDER	
*	3-309-144-21	HEAT SINK	
*	4-941-237-01	HEAT SINK	
*	4-942-204-01	PLATE, GROUND	
	7-682-547-09	SCREW +BVTT 3X6 (S)	
		MAIN BOARD (A) **************	
		< CAPACITOR >	
⚠C1	1-161-744-51	CERAMIC 0.01uF 400V	
C201	1-162-286-31	CERAMIC 220PF 10% 50V	
C202	1-126-059-11	ELECT 10uF 20% 50V	
C203	1-126-059-11	ELECT 10uF 20% 50V	
C204	1-162-293-31	CERAMIC 820PF 10% 50V	

The components identified by
mark ⚠ or dotted line with mark.
⚠ are critical for safety.
Replace only with part number
specified.

MAIN (A)

Ref. No.	Part No.	Description	Remark
C205	1-162-207-31	CERAMIC 22PF 5%	50V
C207	1-164-159-11	CERAMIC 0.1uF	50V
C250	1-164-159-11	CERAMIC 0.1uF	50V
C251	1-162-286-31	CERAMIC 220PF 10%	50V
C254	1-162-293-31	CERAMIC 820PF 10%	50V
C255	1-162-207-31	CERAMIC 22PF 5%	50V
C708	1-136-163-00	FILM 0.068uF 5%	50V
C709	1-136-163-00	FILM 0.068uF 5%	50V
C710	1-124-587-11	ELECT 220uF 20%	6.3V
C711	1-124-587-11	ELECT 220uF 20%	6.3V
C712	1-124-994-11	ELECT 100uF 20%	10V
C713	1-136-163-00	FILM 0.068uF 5%	50V (G, IT)
C714	1-136-163-00	FILM 0.068uF 5%	50V (G, IT)
C730	1-124-791-11	ELECT 1.0uF 20%	100V
C731	1-124-791-11	ELECT 1.0uF 20%	100V
C758	1-136-163-00	FILM 0.068uF 5%	50V
C759	1-136-163-00	FILM 0.068uF 5%	50V
C763	1-136-163-00	FILM 0.068uF 5%	50V (G, IT)
C764	1-136-163-00	FILM 0.068uF 5%	50V (G, IT)
C801	1-126-138-11	ELECT 4700uF 20%	50V (AEP, G, EE, IT, MX, CIS)
C801	1-126-258-11	ELECT 4700uF 20%	56V (AU, EA, E2, E3, MY, PX, SP, E4)
C802	1-126-138-11	ELECT 4700uF 20%	50V (AEP, G, EE, IT, MX, CIS)
C802	1-126-258-11	ELECT 4700uF 20%	56V (AU, EA, E2, E3, MY, PX, SP, E4)
C803	1-124-910-11	ELECT 47uF 20%	50V
C804	1-124-910-11	ELECT 47uF 20%	50V
C807	1-126-059-11	ELECT 10uF 20%	50V
C808	1-126-059-11	ELECT 10uF 20%	50V
C809	1-136-165-00	FILM 0.1uF 5%	50V
C810	1-136-165-00	FILM 0.1uF 5%	50V
C818	1-136-161-00	FILM 0.047uF 5%	50V
C819	1-136-161-00	FILM 0.047uF 5%	50V
C823	1-126-059-11	ELECT 10uF 20%	50V
C824	1-126-696-11	ELECT 33uF 20%	35V
C825	1-126-059-11	ELECT 10uF 20%	50V
C852	1-164-159-11	CERAMIC 0.1uF	50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)
C853	1-164-159-11	CERAMIC 0.1uF	50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)
C854	1-136-169-00	FILM 0.22uF 5%	50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)
C855	1-136-169-00	FILM 0.22uF 5%	50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)
C856	1-126-059-11	ELECT 10uF 20%	50V (AU, EA, E2, E3, MX, MY, PX, SP, E4)

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN1	1-564-321-00	PIN, CONNECTOR 2P	
* CN2	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	(AEP, G, EE, IT, MX, CIS, AU)
* CN2	1-535-140-00	BASE POST 22MM (10MM PITCH) 3P	(EA, E2, E3, MY, PX, SP, E4)
CN201	1-691-165-11	PIN, CONNECTOR 8P	
CN202	1-691-168-11	PIN, CONNECTOR 11P	
* CN203	1-569-491-11	SOCKET, CONNECTOR 5P	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
CN204	1-568-802-11	SOCKET, CONNECTOR 19P	
* CN206	1-566-858-41	SOCKET, CONNECTOR 11P	
* CN707	1-569-491-11	SOCKET, CONNECTOR 5P	
* CN801	1-566-859-11	SOCKET, CONNECTOR 15P	
CN852	1-564-505-11	PLUG, CONNECTOR 2P	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
		< DIODE >	
D701	8-719-987-63	DIODE 1N4148M	
D702	8-719-987-63	DIODE 1N4148M	
D703	8-719-815-85	DIODE 1S1585	
D705	8-719-987-63	DIODE 1N4148M	
D802	8-719-010-55	DIODE UZ-7.5BSC	
D803	8-719-010-55	DIODE UZ-7.5BSC	
D804	8-719-010-55	DIODE UZ-7.5BSC	
D805	8-719-010-55	DIODE UZ-7.5BSC	
D813	8-719-987-63	DIODE 1N4148M	
D814	8-719-987-63	DIODE 1N4148M	
D822	8-719-934-22	DIODE HZS30-2L	
D823	8-719-014-74	DIODE UZP-6.2B	
D851	8-719-987-63	DIODE 1N4148M	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
D852	8-719-987-63	DIODE 1N4148M	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
		< FUSE >	
⚠F1	1-532-259-00	FUSE, TIME-LAG (T1.6A)	(E2, E3, E4, PX, MY, SP)
⚠F2	1-532-259-00	FUSE, TIME-LAG (T1.6A)	(E2, E3, E4, PX, MY, SP)
⚠F801	1-532-203-00	FUSE, TIME-LAG (T2A)	
⚠F802	1-532-203-00	FUSE, TIME-LAG (T2A)	
		< IC >	
IC201	8-759-000-48	IC MC14052BCP	
IC202	8-759-000-49	IC MC14066BCP	
IC203	8-759-000-49	IC MC14066BCP	
IC204	8-759-636-74	IC M5218AP-22	
IC205	8-759-000-49	IC MC14066BCP	
IC206	8-759-636-74	IC M5218AP-22	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
IC250	8-759-202-61	IC TC4094BP	
IC702	8-759-111-68	IC uPC1237HA	
IC801	8-759-071-48	IC TA7807S	
IC802	8-759-071-47	IC TA79007S	
IC851	8-759-729-03	IC NJM2903D	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
		< JACK >	
* J701	1-569-130-11	JACK, PIN 2P (SURROUND SPEAKER)	
		< COIL >	
* L701	1-420-872-00	COIL, AIR CORE	
* L751	1-420-872-00	COIL, AIR CORE	
		< TRANSISTOR >	
Q250	8-729-900-36	TRANSISTOR DTC124ES	
Q251	8-729-900-36	TRANSISTOR DTC124ES	
Q252	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q253	8-729-900-63	TRANSISTOR DTA124ES	
Q254	8-729-900-36	TRANSISTOR DTC124ES	
Q255	8-729-900-36	TRANSISTOR DTC124ES	
Q256	8-729-900-63	TRANSISTOR DTA124ES	
Q257	8-729-900-63	TRANSISTOR DTA124ES	
Q258	8-729-900-63	TRANSISTOR DTA124ES	
Q259	8-729-900-63	TRANSISTOR DTA124ES	
Q260	8-729-900-36	TRANSISTOR DTC124ES	
Q261	8-729-900-63	TRANSISTOR DTA124ES	
Q701	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q702	8-729-900-63	TRANSISTOR DTA124ES	
Q751	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q801	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q851	8-729-140-93	TRANSISTOR 2SB733-34	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
		< RESISTOR >	
R201	1-249-417-11	CARBON 1K 5% 1/4W	F
R202	1-249-417-11	CARBON 1K 5% 1/4W	F
R203	1-249-413-11	CARBON 470 5% 1/4W	F
R204	1-247-807-31	CARBON 100 5% 1/4W	
R205	1-249-426-11	CARBON 5.6K 5% 1/4W	
R206	1-249-437-11	CARBON 47K 5% 1/4W	
R207	1-249-435-11	CARBON 33K 5% 1/4W	(AU)
R207	1-249-437-11	CARBON 47K 5% 1/4W	(EA, E2, E3, MX, MY, PX, SP, E4)
R208	1-249-437-11	CARBON 47K 5% 1/4W	
R209	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R210	1-247-897-11	CARBON 560K 5% 1/4W	
R214	1-249-437-11	CARBON 47K 5% 1/4W	
R215	1-247-897-11	CARBON 560K 5% 1/4W	
R216	1-249-429-11	CARBON 10K 5% 1/4W	
R217	1-249-435-11	CARBON 33K 5% 1/4W	
R218	1-249-432-11	CARBON 18K 5% 1/4W	
R251	1-249-417-11	CARBON 1K 5% 1/4W	F
R252	1-249-417-11	CARBON 1K 5% 1/4W	F
R253	1-249-413-11	CARBON 470 5% 1/4W	F
R254	1-247-807-31	CARBON 100 5% 1/4W	
R255	1-249-426-11	CARBON 5.6K 5% 1/4W	
R256	1-249-437-11	CARBON 47K 5% 1/4W	
R257	1-249-435-11	CARBON 33K 5% 1/4W	(AU)
R257	1-249-437-11	CARBON 47K 5% 1/4W	(EA, E2, E3, MX, MY, PX, SP, E4)
R258	1-249-437-11	CARBON 47K 5% 1/4W	
R259	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R260	1-247-897-11	CARBON 560K 5% 1/4W	
R261	1-249-417-11	CARBON 1K 5% 1/4W	F
R262	1-249-417-11	CARBON 1K 5% 1/4W	F
R263	1-249-417-11	CARBON 1K 5% 1/4W	F
R264	1-249-437-11	CARBON 47K 5% 1/4W	
R265	1-247-897-11	CARBON 560K 5% 1/4W	
R266	1-249-429-11	CARBON 10K 5% 1/4W	
R270	1-249-413-11	CARBON 470 5% 1/4W	F
R271	1-249-413-11	CARBON 470 5% 1/4W	F
R272	1-249-413-11	CARBON 470 5% 1/4W	F
R273	1-249-429-11	CARBON 10K 5% 1/4W	
R274	1-249-429-11	CARBON 10K 5% 1/4W	
R275	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R276	1-249-433-11	CARBON 22K 5% 1/4W	
R277	1-249-433-11	CARBON 22K 5% 1/4W	
R278	1-249-433-11	CARBON 22K 5% 1/4W	
R279	1-249-413-11	CARBON 470 5% 1/4W	F
R280	1-249-433-11	CARBON 22K 5% 1/4W	
R281	1-249-433-11	CARBON 22K 5% 1/4W	
R282	1-249-433-11	CARBON 22K 5% 1/4W	
R283	1-249-417-11	CARBON 1K 5% 1/4W	F
R707	1-249-417-11	CARBON 1K 5% 1/4W	F
R708	1-249-430-11	CARBON 12K 5% 1/4W	
R709	1-249-441-11	CARBON 100K 5% 1/4W	
R711	1-247-727-11	CARBON 10 5% 1/2W	
R712	1-247-727-11	CARBON 10 5% 1/2W	
R713	1-249-438-11	CARBON 56K 5% 1/4W	
R714	1-249-429-11	CARBON 10K 5% 1/4W	
R715	1-249-441-11	CARBON 100K 5% 1/4W	
R716	1-249-417-11	CARBON 1K 5% 1/4W	F
R718	1-249-437-11	CARBON 47K 5% 1/4W	
R719	1-249-430-11	CARBON 12K 5% 1/4W	
R720	1-216-456-00	METAL OXIDE 820 5% 2W	F (AEP, G, EE, IT, MX, CIS)

MAIN (A) MAIN (B) MAIN (C) MAIN (D)

Ref. No.	Part No.	Description	Remark
R720	1-216-457-00	METAL OXIDE 1.2K 5% 2W	F (AU, EA, E2, E3, MY, PX, SP, E4)
R721	1-249-391-11	CARBON 6.8 5% 1/4W	(G, IT)
R757	1-249-417-11	CARBON 1K 5% 1/4W	F
R758	1-249-430-11	CARBON 12K 5% 1/4W	
R759	1-249-441-11	CARBON 100K 5% 1/4W	
R761	1-247-727-11	CARBON 10 5% 1/2W	
R762	1-247-727-11	CARBON 10 5% 1/2W	
R763	1-249-437-11	CARBON 47K 5% 1/4W	
R771	1-247-727-11	CARBON 10 5% 1/2W	(G, IT)
R801	1-216-481-11	METAL OXIDE 1.2K 5% 3W	F
R802	1-216-481-11	METAL OXIDE 1.2K 5% 3W	F
R805	1-247-761-11	CARBON 5.6K 5% 1/2W	
R806	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R851	1-247-807-31	CARBON 100 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R852	1-249-441-11	CARBON 100K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R853	1-249-417-11	CARBON 1K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R854	1-249-426-11	CARBON 5.6K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R855	1-249-438-11	CARBON 56K 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R856	1-249-417-11	CARBON 1K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R857	1-249-417-11	CARBON 1K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R858	1-249-417-11	CARBON 1K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R859	1-249-417-11	CARBON 1K 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)
R860	1-247-730-11	CARBON 18 5% 1/2W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
R861	1-249-389-11	CARBON 4.7 5% 1/4W	F (AU, EA, E2, E3, MX, MY, PX, SP, E4)

< RELAY >

Ref. No.	Part No.	Description	Remark
RY701	1-515-765-11	RELAY	

< SWITCH >

Ref. No.	Part No.	Description	Remark
⚠S1	1-554-920-51	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)	

< TERMINAL >

Ref. No.	Part No.	Description	Remark
TM701	1-537-240-11	TERMINAL BOARD (CHECKER PIN)	

MAIN BOARD (B)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C805	1-124-887-00	ELECT 3300uF 20% 16V	
C806	1-124-887-00	ELECT 3300uF 20% 16V	
C811	1-136-173-00	FILM 0.47uF 5% 50V	
C812	1-136-173-00	FILM 0.47uF 5% 50V	
C813	1-136-161-00	FILM 0.047uF 5% 50V	
C814	1-136-161-00	FILM 0.047uF 5% 50V	
C817	1-126-162-11	ELECT 3.3uF 20% 50V	
C822	1-124-920-11	ELECT 330uF 20% 63V	

< DIODE >

Ref. No.	Part No.	Description	Remark
D801	8-719-302-38	DIODE RBV-602-01	
D806	8-719-200-77	DIODE 10E2N	
D807	8-719-200-77	DIODE 10E2N	
D808	8-719-200-77	DIODE 10E2N	
D809	8-719-200-77	DIODE 10E2N	
D811	8-719-987-63	DIODE 1N4148M	
D812	8-719-987-63	DIODE 1N4148M	
D821	8-719-200-77	DIODE 10E2N	

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠ICP801	1-532-843-21	LINK, IC	
⚠ICP802	1-532-843-21	LINK, IC	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R803	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R804	1-249-428-11	CARBON 8.2K 5% 1/4W	F
⚠R807	1-212-934-00	FUSIBLE 1 5% 1/2W	F

MAIN BOARD (C)
****

MAIN BOARD (D)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C706	1-124-572-11	ELECT 100uF 20% 63V	
C707	1-124-572-11	ELECT 100uF 20% 63V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN704	1-569-504-11	PIN, CONNECTOR 9P	(AEP, G, EE, IT, CIS)
* CN704	1-569-507-11	PIN, CONNECTOR 12P	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

< RESISTOR >

Ref. No.	Part No.	Description	Remark
⚠R705	1-212-881-11	FUSIBLE 100 5% 1/4W	F
⚠R706	1-212-881-11	FUSIBLE 100 5% 1/4W	F
R710	1-217-156-00	RES, METAL PLATE 0.22	
R760	1-217-156-00	RES, METAL PLATE 0.22	

****

Ref. No.	Part No.	Description	Remark
*	1-651-413-11	MIC BOARD (AU, EA, E2, E3, MX, MY, PX, SP, E4)	

****

MIC BOARD (A)

****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C421	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C422	1-126-161-11	ELECT 2.2uF 5% 50V	
C423	1-162-219-31	CERAMIC 68PF 5% 50V	
C424	1-162-286-31	CERAMIC 220PF 10% 50V	
C425	1-126-163-11	ELECT 4.7uF 20% 50V	
C426	1-126-163-11	ELECT 4.7uF 20% 50V	
C427	1-162-286-31	CERAMIC 220PF 10% 50V	
C428	1-124-464-11	ELECT 0.22uF 20% 50V	
C429	1-104-792-51	ELECT 33uF 20% 16V	
C430	1-104-792-51	ELECT 33uF 20% 16V	
C431	1-164-159-11	CERAMIC 0.1uF 50V	

< IC >

Ref. No.	Part No.	Description	Remark
IC421	8-759-184-02	IC NJM2068L-D	

< JACK >

Ref. No.	Part No.	Description	Remark
J401	1-507-854-00	JACK, PHONE (MIC)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R421	1-249-441-11	CARBON 100K 5% 1/4W	
R422	1-249-429-11	CARBON 10K 5% 1/4W	
R423	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R424	1-249-440-11	CARBON 82K 5% 1/4W	
R425	1-249-429-11	CARBON 10K 5% 1/4W	
R426	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R427	1-249-440-11	CARBON 82K 5% 1/4W	
R428	1-249-409-11	CARBON 220 5% 1/4W	F
R429	1-249-429-11	CARBON 10K 5% 1/4W	
R430	1-247-807-31	CARBON 100 5% 1/4W	
R432	1-247-807-31	CARBON 100 5% 1/4W	
R434	1-247-417-11	CARBON 1K 5% 1/4W	
R443	1-247-417-11	CARBON 1K 5% 1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV421	1-223-334-11	RES, VAR, CARBON 50K (MIC LEVEL)	

MIC BOARD (B)

****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN401	1-569-500-11	PIN, CONNECTOR 5P	

****

Ref. No.	Part No.	Description	Remark
*	A-4369-456-A	PANEL BOARD, COMPLETE (AEP, G, EE, IT, CIS)	
*	A-4369-467-A	PANEL BOARD, COMPLETE (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
*	4-921-941-21	CUSHION (FL)	
*	4-923-103-01	HOLDER, FL TUBE	

PANEL BOARD (A)

****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C605	1-126-300-11	ELECT 0.47uF 20% 50V	
C606	1-124-250-00	ELECT 0.15uF 20% 50V	
C607	1-126-301-11	ELECT 1uF 20% 50V	
C611	1-164-159-11	CERAMIC 0.1uF 50V	
C612	1-164-159-11	CERAMIC 0.1uF 50V	
C655	1-124-465-00	ELECT 0.47uF 20% 50V	
C656	1-124-250-00	ELECT 0.15uF 20% 50V	
C657	1-126-301-11	ELECT 1uF 20% 50V	
C901	1-126-059-11	ELECT 10uF 20% 50V	
C902	1-125-486-11	DOUBLE LAYERS 0.22F 5.5V	
C903	1-126-049-11	ELECT 22uF 20% 25V	
C906	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C909	1-161-494-00	CERAMIC 0.022uF 25V	
C911	1-164-159-11	CERAMIC 0.1uF 50V	
C912	1-164-159-11	CERAMIC 0.1uF 50V	
C921	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C922	1-161-494-00	CERAMIC 0.022uF 25V	
C923	1-126-059-11	ELECT 10uF 20% 50V	
C924	1-161-494-00	CERAMIC 0.022uF 25V	
C925	1-126-059-11	ELECT 10uF 20% 50V	
C941	1-162-290-31	CERAMIC 470PF 10% 50V	
C942	1-162-290-31	CERAMIC 470PF 10% 50V	
C943	1-162-290-31	CERAMIC 470PF 10% 50V	
C944	1-162-290-31	CERAMIC 470PF 10% 50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

PANEL (A)

Ref. No.	Part No.	Description	Remark
C945	1-162-290-31	CERAMIC 470PF 10% 50V	
C946	1-162-290-31	CERAMIC 470PF 10% 50V	
C947	1-162-290-31	CERAMIC 470PF 10% 50V	
C949	1-162-290-31	CERAMIC 470PF 10% 50V	

< COMPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description	Remark
CP901	1-232-998-11	COMPOSITION CIRCUIT BLOCK	
CP902	1-232-998-11	COMPOSITION CIRCUIT BLOCK	
CP903	1-232-998-11	COMPOSITION CIRCUIT BLOCK	
CP904	1-232-998-11	COMPOSITION CIRCUIT BLOCK	

< DIODE >

Ref. No.	Part No.	Description	Remark
D601	8-719-987-63	DIODE 1N4148M	
D651	8-719-987-63	DIODE 1N4148M	
D911	8-719-301-37	LED SEL2210S-CD (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
D912	8-719-301-37	LED SEL2210S-CD	
D913	8-719-301-39	LED SEL2210S	
D914	8-719-301-39	LED SEL2210S	
D915	8-719-301-39	LED SEL2210S	
D916	8-719-301-39	LED SEL2210S	
D917	8-719-301-39	LED SEL2210S	
D918	8-719-301-37	LED SEL2210S-CD	
D919	8-719-301-37	LED SEL2210S-CD	
D920	8-719-301-37	LED SEL2210S-CD	
D921	8-719-301-37	LED SEL2210S-CD	
D922	8-719-301-39	LED SEL2210S	
D923	8-719-301-39	LED SEL2210S	
D924	8-719-301-39	LED SEL2210S	
D928	8-719-815-85	DIODE 1S1585	
D929	8-719-000-60	DIODE UZL-6M2	
D930	8-719-987-63	DIODE 1N4148M	
D931	8-719-987-63	DIODE 1N4148M	
D932	8-719-987-63	DIODE 1N4148M	
D933	8-719-987-63	DIODE 1N4148M	
D934	8-719-987-63	DIODE 1N4148M	
D935	8-719-987-63	DIODE 1N4148M	
D936	8-719-987-63	DIODE 1N4148M	
D941	8-719-301-39	LED SEL2210S	
D942	8-719-301-39	LED SEL2210S	
D943	8-719-301-39	LED SEL2210S	
D944	8-719-301-39	LED SEL2210S	
D945	8-719-301-39	LED SEL2210S	
D946	8-719-301-37	LED SEL2210S-CD	
D947	8-719-301-39	LED SEL2210S	
D948	8-719-301-39	LED SEL2210S	
D949	8-719-301-37	LED SEL2210S-CD	
D950	8-719-987-63	DIODE 1N4148M	
D951	8-719-987-63	DIODE 1N4148M	
D952	8-719-987-63	DIODE 1N4148M	
D953	8-719-987-63	DIODE 1N4148M	
D954	8-719-987-63	DIODE 1N4148M	
D955	8-719-987-63	DIODE 1N4148M	
D956	8-719-987-63	DIODE 1N4148M	
D957	8-719-987-63	DIODE 1N4148M	
D958	8-719-987-63	DIODE 1N4148M	
D959	8-719-987-63	DIODE 1N4148M	
D960	8-719-987-63	DIODE 1N4148M	
D961	8-719-987-63	DIODE 1N4148M	

< FILTER >

Ref. No.	Part No.	Description	Remark
FL901	1-517-266-21	INDICATOR TUBE, FLUORESCENT	

< IC >

Ref. No.	Part No.	Description	Remark
IC901	8-759-256-75	IC uPD78042GF-057-3B9	
IC903	8-759-991-11	IC XR1091DCP	

< COIL >

Ref. No.	Part No.	Description	Remark
L921	1-408-121-00	INDUCTOR 22uH	
L922	1-408-121-00	INDUCTOR 22uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q601	8-729-224-62	TRANSISTOR 2SK246-GR	
Q602	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q603	8-729-900-36	TRANSISTOR DTC124ES	
Q604	8-729-900-63	TRANSISTOR DTA124ES	
Q651	8-729-224-62	TRANSISTOR 2SK246-GR	
Q652	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q912	8-729-900-36	TRANSISTOR DTC124ES	
Q913	8-729-900-36	TRANSISTOR DTC124ES (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
Q914	8-729-900-36	TRANSISTOR DTC124ES	
Q915	8-729-900-36	TRANSISTOR DTC124ES	
Q916	8-729-900-36	TRANSISTOR DTC124ES	
Q917	8-729-900-36	TRANSISTOR DTC124ES	
Q941	8-729-900-36	TRANSISTOR DTC124ES	
Q942	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q944	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q945	8-729-900-36	TRANSISTOR DTC124ES	
Q946	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q948	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q949	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R603	1-247-903-00	CARBON 1M 5% 1/4W	
R604	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R605	1-249-434-11	CARBON 27K 5% 1/4W	

Ref. No.	Part No.	Description				Remark
R606	1-247-881-00	CARBON	120K	5%	1/4W	
R607	1-249-412-11	CARBON	390	5%	1/4W	F
R608	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R612	1-249-441-11	CARBON	100K	5%	1/4W	
R613	1-249-435-11	CARBON	33K	5%	1/4W	
R614	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R624	1-249-435-11	CARBON	33K	5%	1/4W	
R625	1-249-426-11	CARBON	5.6K	5%	1/4W	
R653	1-247-903-00	CARBON	1M	5%	1/4W	
R654	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R655	1-249-434-11	CARBON	27K	5%	1/4W	
R656	1-247-881-00	CARBON	120K	5%	1/4W	
R657	1-249-412-11	CARBON	390	5%	1/4W	F
R658	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R674	1-249-435-11	CARBON	33K	5%	1/4W	
R675	1-249-426-11	CARBON	5.6K	5%	1/4W	
R901	1-249-429-11	CARBON	10K	5%	1/4W	
R912	1-249-413-11	CARBON	470	5%	1/4W	F
R913	1-249-413-11	CARBON	470	5%	1/4W	F
R918	1-249-413-11	CARBON	470	5%	1/4W	F
R919	1-249-441-11	CARBON	100K	5%	1/4W	
R921	1-249-441-11	CARBON	100K	5%	1/4W	
R924	1-249-441-11	CARBON	100K	5%	1/4W	
R926	1-249-441-11	CARBON	100K	5%	1/4W	
R927	1-249-441-11	CARBON	100K	5%	1/4W	
R928	1-249-429-11	CARBON	10K	5%	1/4W	
R929	1-249-429-11	CARBON	10K	5%	1/4W	
R930	1-249-429-11	CARBON	10K	5%	1/4W	
R931	1-249-437-11	CARBON	47K	5%	1/4W	
R932	1-249-437-11	CARBON	47K	5%	1/4W	
R933	1-249-437-11	CARBON	47K	5%	1/4W	
R934	1-249-437-11	CARBON	47K	5%	1/4W	
R935	1-249-409-11	CARBON	220	5%	1/4W	F(Suffix-11)
R935	1-249-413-11	CARBON	470	5%	1/4W	F(Suffix-12)
R936	1-249-409-11	CARBON	220	5%	1/4W	F(Suffix-11)
R936	1-249-413-11	CARBON	470	5%	1/4W	F(Suffix-12)
R937	1-249-437-11	CARBON	47K	5%	1/4W	
R938	1-249-433-11	CARBON	22K	5%	1/4W	
R941	1-249-417-11	CARBON	1K	5%	1/4W	F
R942	1-249-396-11	CARBON	18	5%	1/6W	F
R944	1-249-396-11	CARBON	18	5%	1/6W	F
R945	1-249-396-11	CARBON	18	5%	1/6W	F
R946	1-249-396-11	CARBON	18	5%	1/6W	F
R947	1-249-417-11	CARBON	1K	5%	1/4W	F
R948	1-249-396-11	CARBON	18	5%	1/6W	F
R949	1-249-396-11	CARBON	18	5%	1/6W	F
R952	1-249-393-11	CARBON	10	5%	1/4W	F
R953	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R955	1-249-429-11	CARBON	10K	5%	1/4W	
R957	1-249-417-11	CARBON	1K	5%	1/4W	F
R959	1-249-413-11	CARBON	470	5%	1/4W	F
R962	1-249-429-11	CARBON	10K	5%	1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV601	1-238-977-11	RES, VAR, CARBON 100K/100K (LEVEL)	
RV602	1-238-977-11	RES, VAR, CARBON 100K/100K (FREQ(HZ))	
RV604	1-223-669-11	RES, VAR, CARBON 100K (BALANCE)	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S901	1-554-303-21	SWITCH, TACTILE (DISPLAY)	
S902	1-554-303-21	SWITCH, TACTILE (CURSOR CONTROL(UP))	
S903	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S904	1-554-303-21	SWITCH, TACTILE (LEVEL(SURROUND))	
S905	1-554-303-21	SWITCH, TACTILE (MODE/OFF(SURROUND))	
S906	1-554-303-21	SWITCH, TACTILE (ON/OFF)	
S907	1-554-303-21	SWITCH, TACTILE (KARAOKE PON) (AU, EA, E2, E3, MX, MY, PX, SP, E4)	
S908	1-554-303-21	SWITCH, TACTILE (CURSOR CONTROL(RIGHT))	
S909	1-554-303-21	SWITCH, TACTILE (CURSOR CONTROL(LEFT))	
S910	1-554-303-21	SWITCH, TACTILE (PERSONAL FILE(CURSOR MODE))	
S911	1-554-303-21	SWITCH, TACTILE (SELECT 5(CURSOR MODE))	
S912	1-554-303-21	SWITCH, TACTILE (EQ(CURSOR MODE))	
S913	1-554-303-21	SWITCH, TACTILE (EQ FLAT)	
S914	1-554-303-21	SWITCH, TACTILE (SOURCE DIRECT)	
S915	1-554-303-21	SWITCH, TACTILE (PHONO)	
S916	1-554-303-21	SWITCH, TACTILE (CURSOR CONTROL(DOWN))	
S917	1-554-303-21	SWITCH, TACTILE (TUNER)	
S918	1-554-303-21	SWITCH, TACTILE (CD)	
S919	1-554-303-21	SWITCH, TACTILE (TAPE)	
S920	1-554-303-21	SWITCH, TACTILE (VIDEO/MD)	
S921	1-554-303-21	SWITCH, TACTILE (P FUNCTION)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X901	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	

PANEL BOARD (B)
****

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C628	1-164-159-11	CERAMIC	0.1uF		50V	
C935	1-124-994-11	ELECT	100uF	20%	10V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN606	1-568-450-11	HOUSING, CONNECTOR(PC BOARD)4P	

PANEL (B) PANEL (C) PANEL (D) PANEL (E)

< DIODE >

Ref. No.	Part No.	Description	Remark
D971	8-719-010-32	DIODE UZ-4.7BSA	
D972	8-719-200-82	DIODE 11ES2	
D973	8-719-200-82	DIODE 11ES2	

< IC >

Ref. No.	Part No.	Description	Remark
IC904	8-759-820-62	IC LB1639	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q925	8-729-900-36	TRANSISTOR DTC124ES	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R925	1-249-415-11	CARBON 680 5% 1/4W	F
R974	1-249-397-11	CARBON 22 5% 1/4W	F
R975	1-249-433-11	CARBON 22K 5% 1/4W	
R976	1-249-433-11	CARBON 22K 5% 1/4W	
R977	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R978	1-249-425-11	CARBON 4.7K 5% 1/4W	F

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV603	1-223-690-11	RES, VAR, CARBON 10K/100K/100K (VOLUME)	

PANEL BOARD (C)
****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN607	1-568-453-11	PIN, CONNECTOR (PC BOARD) 4P	

PANEL BOARD (D)
****

PANEL BOARD (E)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C601	1-126-161-11	ELECT 2.2uF 20% 50V	
C602	1-162-282-31	CERAMIC 100PF 10% 50V	
C603	1-162-282-31	CERAMIC 100PF 10% 50V	
C604	1-126-161-11	ELECT 2.2uF 20% 50V	
C608	1-126-059-11	ELECT 10uF 20% 50V	
C609	1-126-059-11	ELECT 10uF 20% 50V	
C627	1-126-300-11	ELECT 0.47uF 20% 50V	
C651	1-126-161-11	ELECT 2.2uF 20% 50V	
C652	1-162-282-31	CERAMIC 100PF 10% 50V	
C653	1-162-282-31	CERAMIC 100PF 10% 50V	
C654	1-126-161-11	ELECT 2.2uF 20% 50V	
C677	1-126-300-11	ELECT 0.47uF 20% 50V	
C904	1-164-159-11	CERAMIC 0.1uF 50V	
C905	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C907	1-136-159-00	FILM 0.033uF 5% 50V	
C908	1-164-159-11	CERAMIC 0.1uF 50V	
C950	1-161-494-00	CERAMIC 0.022uF 25V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN901	1-568-802-11	SOCKET, CONNECTOR 19P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D901	8-719-000-81	DIODE UZL-7L3	
D902	8-719-987-63	DIODE 1N4148M	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-200-82	DIODE 11ES2	
D905	8-719-987-63	DIODE 1N4148M	
D907	8-719-987-63	DIODE 1N4148M	
D908	8-719-987-63	DIODE 1N4148M	
D909	8-719-987-63	DIODE 1N4148M	
D910	8-719-200-82	DIODE 11ES2	
D980	8-719-200-82	DIODE 11ES2	
D981	8-719-987-63	DIODE 1N4148M	

< IC >

Ref. No.	Part No.	Description	Remark
IC601	8-759-636-74	IC M5218AP-22	
IC902	8-759-635-63	IC M51943BSL	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q605	8-729-900-63	TRANSISTOR DTA124ES	
Q621	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q671	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q901	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q902	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R601	1-249-441-11	CARBON 100K 5% 1/4W	
R602	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R620	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R621	1-249-417-11	CARBON 1K 5% 1/4W	F
R622	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R623	1-249-441-11	CARBON 100K 5% 1/4W	
R626	1-249-417-11	CARBON 1K 5% 1/4W	F
R651	1-249-441-11	CARBON 100K 5% 1/4W	
R652	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R670	1-249-425-11	CARBON 4.7K 5% 1/4W	F

Ref. No.	Part No.	Description	Remark
R671	1-249-417-11	CARBON 1K 5% 1/4W	F
R676	1-249-417-11	CARBON 1K 5% 1/4W	F
R902	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R903	1-249-429-11	CARBON 10K 5% 1/4W	
R904	1-249-417-11	CARBON 1K 5% 1/4W	F
R905	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R907	1-249-429-11	CARBON 10K 5% 1/4W	
R943	1-249-417-11	CARBON 1K 5% 1/4W	F
R958	1-249-429-11	CARBON 10K 5% 1/4W	

****

* A-4369-455-A STK BOARD, COMPLETE (AEP, EE, CIS)
****

* A-4369-462-A STK BOARD, COMPLETE (G, IT)
****

* A-4369-465-A STK BOARD, COMPLETE (AU, EA, E2, E3, MY, PX, SP, E4)
****

* A-4371-374-A STK BOARD, COMPLETE (MX)
****

STK BOARD (A)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C701	1-126-161-11	ELECT 2.2uF 20% 50V	
C702	1-162-282-31	CERAMIC 100PF 10% 50V	
C703	1-162-286-31	CERAMIC 220PF 10% 50V	
C704	1-124-994-11	ELECT 100uF 20% 10V	
C726	1-161-494-00	CERAMIC 0.022uF 25V	(G, IT)
C751	1-126-161-11	ELECT 2.2uF 20% 50V	
C752	1-162-282-31	CERAMIC 100PF 10% 50V	
C753	1-162-286-31	CERAMIC 220PF 10% 50V	
C754	1-124-994-11	ELECT 100uF 20% 10V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN702	1-564-518-11	PLUG, CONNECTOR 3P	
* CN703	1-569-495-11	SOCKET, CONNECTOR 9P	(AEP, G, EE, IT, CIS)
* CN703	1-569-498-11	SOCKET, CONNECTOR 12P	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

< IC >

Ref. No.	Part No.	Description	Remark
IC701	8-749-922-94	IC STK-401-080	(AEP, G, EE, IT, MX, CIS)
IC701	8-749-922-95	IC STK-401-090	(AU, EA, E2, E3, MY, PX, SP, E4)

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R701	1-249-417-11	CARBON 1K 5% 1/4W	F
R702	1-249-438-11	CARBON 56K 5% 1/4W	
R703	1-249-414-11	CARBON 560 5% 1/4W	F
R704	1-249-438-11	CARBON 56K 5% 1/4W	
R751	1-249-417-11	CARBON 1K 5% 1/4W	F
R752	1-249-438-11	CARBON 56K 5% 1/4W	
R753	1-249-414-11	CARBON 560 5% 1/4W	F
R754	1-249-438-11	CARBON 56K 5% 1/4W	

STK BOARD (B)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C858	1-161-379-00	CERAMIC 0.01uF 20% 25V	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

< IC >

Ref. No.	Part No.	Description	Remark
IC852	8-759-947-34	IC LM35DZ	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R862	1-247-807-31	CARBON 100 5% 1/4W	(AU, EA, E2, E3, MX, MY, PX, SP, E4)

****

* 1-652-079-11 TS BOARD (AU)
****

****

* 1-651-410-11 VS BOARD (EA, E2, E3, MY, PX, SP, E4)
****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN3	1-573-565-11	PIN, CONNECTOR 5P	

< VOLTAGE SELECTOR >

Ref. No.	Part No.	Description	Remark
⚠VS1	1-572-009-11	SELECTOR, VOLTAGE (VOLTAGE SELECTOR)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
7	1-765-151-11	WIRE (FLAT TYPE) (19 CORE)	
⚠61	1-751-355-11	CORD, POWER	(AU)
⚠62	1-575-654-11	CORD, POWER	(AEP, G, EA, EE, IT, MY, SP, CIS)
⚠63	1-575-656-11	CORD, POWER	(E2, E3, E4, MX, PX)
M851	X-4942-029-1	CASE ASSY, FAN	(AU, EA, E2, E3, MX, MY, PX, SP, E4)
⚠T1	1-423-529-11	TRANSFORMER, POWER	(AEP, G, EE, IT, CIS)
⚠T1	1-423-530-11	TRANSFORMER, POWER	(AU, EA, E2. E3, MY, PX, SP, E4)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
⚠T1	1-426-781-11	TRANSFORMER, POWER (MX)	

****

ACCESSORIES & PACKING MATERIALS
****

*	4-965-421-01	CUSHION

****

****
HARDWARE LIST
****

#1	7-621-849-00	SCREW (BV/RING)
#2	7-682-547-09	SCREW +BVTT 3X6 (S)
#3	7-682-560-04	SCREW +BVTT 4X6 (S)
#4	7-685-645-79	SCREW +BVTP 3X6 TYPE2
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#6	7-685-650-79	SCREW +BVTP 3X16 TYPE2

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

9-959-481-11

Sony Corporation

3.98'

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94C0570-1
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Published by Audio Sector Quality Assurance Dept.

TC-A590/A790

SERVICE MANUAL

AEP Model
E Model
Australian Model

Photo: TC-A590

TC-A590/A790 is the Cassette deck in LBT-A590/A595/A790/A795.

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF With Sony Type IV cassette 30 Hz to 15 kHz (± 3 dB) With Sony Type II cassette 40 Hz to 14 kHz (± 3 dB) With Sony Type I cassette 40 Hz to 13 kHz (± 3 dB)
Wow and flutter	W.PEAK ± 0.2% (DIN)
Weight	Approx. 3.4 kg (7 lbs 8 oz)
Dimensions	Approx. 355 x 135 x 310 mm (14 x 5 $^{1}/_{4}$ x 12 $^{3}/_{16}$ inches) (w/h/d, including projections)

Model Name Using Similar Mechanism		HTC-D209/D309/D259/D359
Tape Transport Mechanism Type	DECK A	TCM-190RA12CL
	DECK B	TC-A590: TCM-190RB42C7 TC-A790: TCM-190RB12CL

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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MICROFILM

CASSETTE DECK

SONY®

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SERVICE NOTE

- **Power Supply Used In Servicing**
  This unit does not have its own power supply. As it works on the power supplied from the amplifier (TA-A590) used for this series, connect this amplifier when servicing the unit (conduction repair, etc.).

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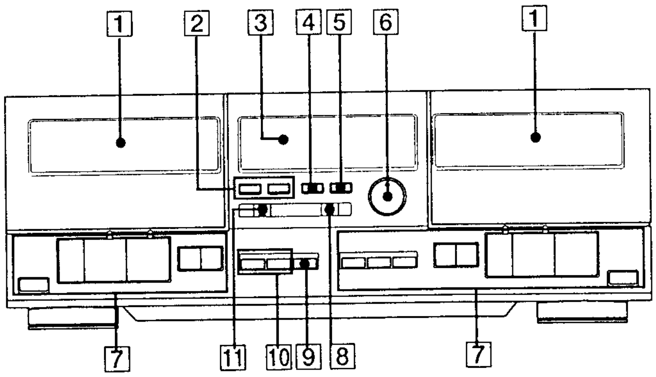
SECTION 1
GENERAL

This section is extracted from instruction manual.

• LOCATION OF CONTROLS



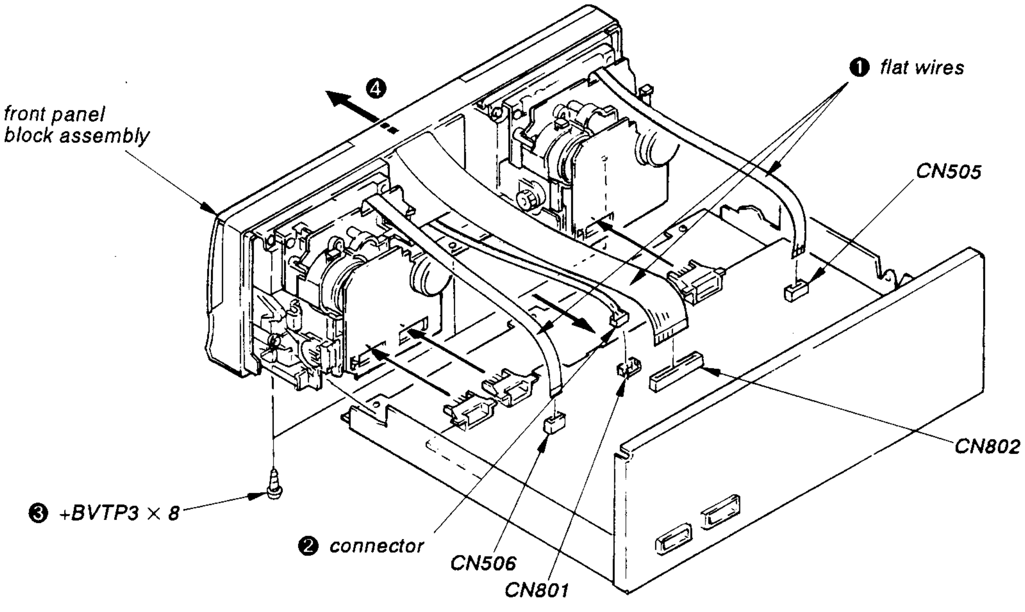
1 Cassette holders
2 COUNTER RESET buttons (36)
3 Display window
4 FADER button (46)
5 ARL button (44)
6 REC LEVEL control (44)
7 Tape operation buttons
  ◀◀ Leftward fast winding/AMS*,
  ▶▶ Rightward fast winding/AMS*,
  ▶ Forward play,
  ◀ Reverse play,
  ■ Stop, ⏏ EJECT, ❚❚ PAUSE (deck B only),
  ○ REC MUTE (recording mute) (deck B only),
  ● REC Record (deck B only)
8 DOLBY NR (noise reduction) selector (38)
9 CD SYNCHRO button (70)
10 SYNCHRO DUBBING buttons (48)
11 DIRECTION MODE selector (34, 38, 48, 52)

* AMS is the abbreviation of Automatic Music Sensor.

SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

FRONT PANEL BLOCK ASSEMBLY



❶ flat wires
❹
front panel block assembly
CN505
CN802
❸ +BVTP3 × 8
❷ connector
CN506
CN801

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

Precautions:

1. Clean the following parts with a denatured-alcoholmoistened swab;
    - record/playback/erase head
    - pinch roller   rubber belts
    - capstan   idler
2. Demagnetize the record/playback head with a head demagnetizer. (Head demagnetizer do not approach for the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed in the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	35 to 60 g • cm (0.49 to 0.83 oz•inch)
FWD Back tension	CQ-102C	2 to 60 g • cm (0.03 to 0.08 oz•inch)
REV	CQ-102RC	35 to 60 g • cm (0.49 to 0.83 oz inch)
REV Back tension	CQ-102RC	2 to 6 g • cm (0.03 to 0.08 oz•inch)
FF, REW	CQ-201B	70 to 110 g • cm (0.98 to 1.52 oz•inch)

3-2. ELECTRICAL ADJUSTMENTS

0 dB = 0.775 V (AF)

Precautions:

1. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
2. Do not use a magnetized screwdriver fot the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch : OFF
TAPE: TYPE I

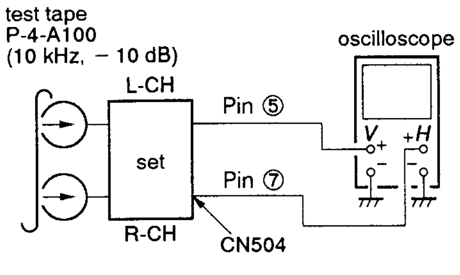
Type	Signal	Used for
P-4-A100	6.3 kHz, − 10 dB	Azimuth Adjustment
P-4-L300	315 Hz, 0 dB	PB Level Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment **DECK A**

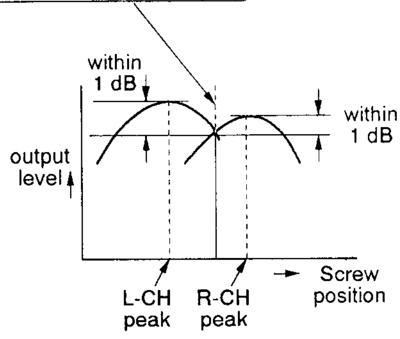
Note: Perform this adjustments for both decks. **DECK B**

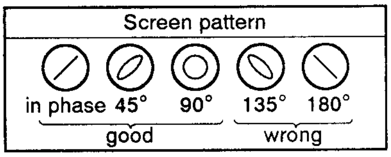
Procedure:

1. Mode: FWD playback



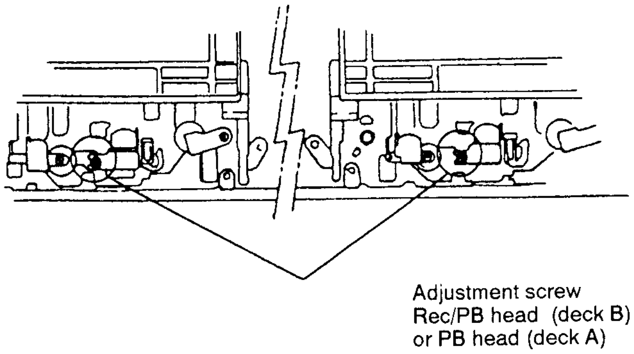
2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.





3. After the adjustments, apply suitable locking compound to the parts adjusted.

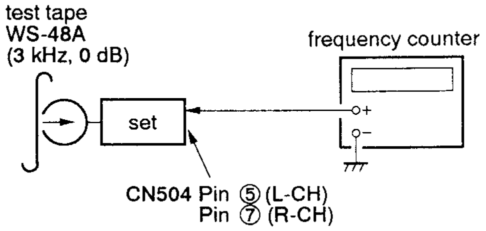
Adjustment Location:



Tape Speed Adjustment **DECK A** **DECK B**

Procedure:

Mode: playback



- High speed adjustment

1. Short-circuit JW5 and JW6 (main board) when the power is off.
2. Turn on the power and put the deck A into the FWD mode.
3. Push HIGH SPEED button.
4. Adjustment RV72 so that the frequency counter reads 6.000 ± 60 Hz.
5. Adjust the deck B in the same manner as the deck B.
6. Remove the short of JW5 and JW6.

- NORMAL speed adjustment

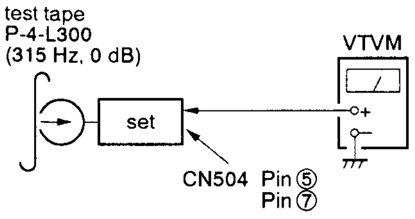
1. Push NORMAL speed button.
2. Adjust RV71 so that the frequency counter reads 3,000 ± 30 Hz.

   (See page 6 for Adjusting Parts Location)

   Frequency difference between deck A and deck B the beginning of the tape should be within 1%.

Playback Level Adjustment DECK A DECK B

Procedure:


test tape
P-4-L300
(315 Hz, 0 dB)
VTVM
set
+
CN504 Pin⑤
Pin⑦

Mode: FWD playback
DECK-A side RV11(L-CH), RV21(R-CH)
DECK-B side RV11(L-CH), RV21(R-CH)
so that the limits below are satisfied.

Adjustable limits:

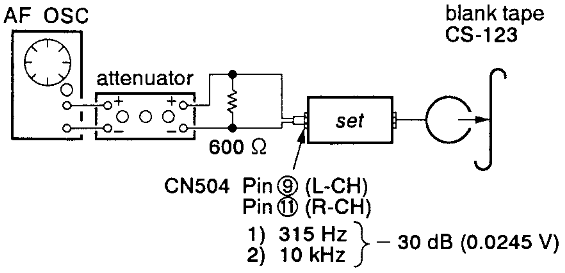
CN504 Level: − 7.7 ± 0.5 dB (0.301 − 0.338 V)
level difference between the channels: within 1.0 dB (See page 6 for Adjusting Parts Location)

Record BIAS Current Adjustment DECK B

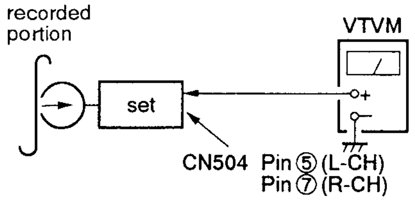
[TC-A590]

Procedure:

1. Mode: record


AF OSC
attenuator
+
+
−
−
600 Ω
set
blank tape
CS-123
CN504 Pin⑨ (L-CH)
Pin⑪ (R-CH)
1) 315 Hz
2) 10 kHz
− 30 dB (0.0245 V)

2. Mode : playback


recorded
portion
VTVM
set
+
CN504 Pin⑤ (L-CH)
Pin⑦ (R-CH)

Playback the signal recorded in step 1.
Confirm that the 10 kHz playback output is 0 ± 0.5 dB relative to the 315 Hz output. If necessary, adjust RV12 (L-CH), RV22 (R-CH) and repeat the steps given above.

[TC-A790]

Procedure:

1. Set RV81 and RV91 to mechanical center and turn the set recording mode under the no-signal condition.
2. Connect digital voltmeter as shown by the following table.
3. Adjust the following transformers for the minimum readings on the digital voltmeter.

	Mesurement Point	Adjustment	Value
L	① and ②, TP81	T81	less than 200 mV
R	② and ③, TP81	T91	

(See page 6 for Adjusting Parts Location)

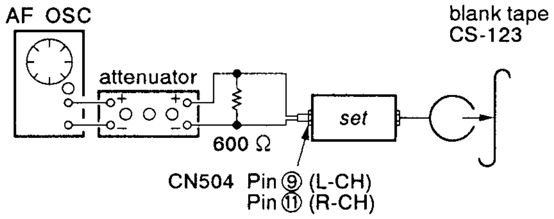
Record Level/REC Monitor L/R Balance Adjustments DECK B

Setting:

TAPE: TYPE I

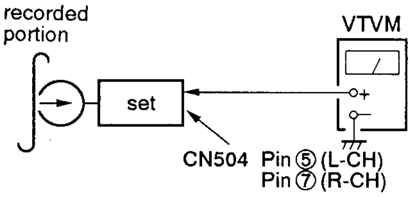
Procedure:

1. Mode: record


AF OSC
attenuator
+
+
−
−
600 Ω
set
blank tape
CS-123
CN504 Pin⑨ (L-CH)
Pin⑪ (R-CH)

1) 315 Hz − 30 dB (0.0245 V)

2. When the level difference between the channels on monitoring the recording signal at Pins ⑤ and ⑦ of CN504 goes 0.5 dB or more, adjust with RV401 so that the level difference (REC monitor L/R balance adjustment) goes 0 dB.
3. Mode: playback

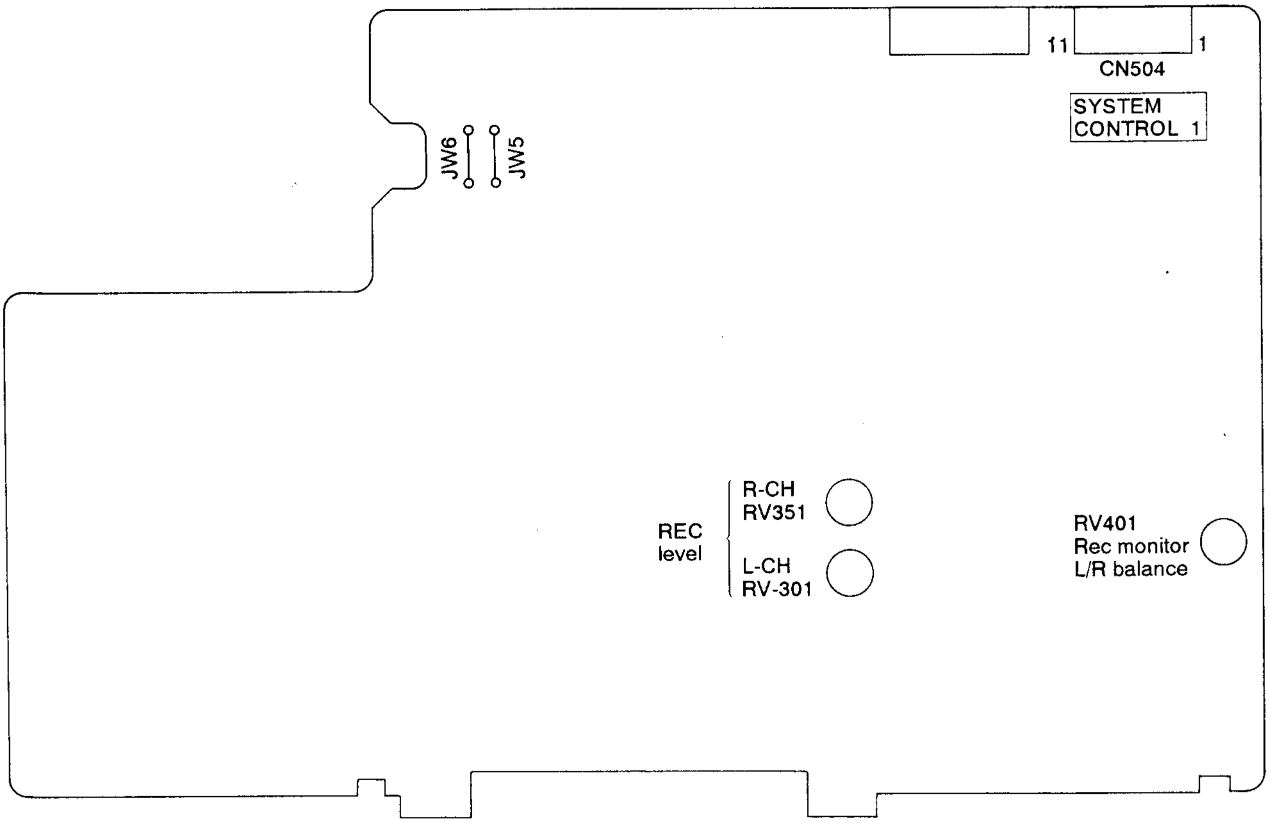

recorded
portion
VTVM
set
+
CN504 Pin⑤ (L-CH)
Pin⑦ (R-CH)

4. Playback the signal recorded in step 1.
   Confirm that the signal level is within the adjustment limits below. If necessary, adjust RV301 (L-CH), RV351 (R-CH) and repeat the step 1-3.

Adjustable: − 30.0 ± 0.5 dB (0.0231 − 0.026 V)
(See page 6 for Adjusting Parts Location)

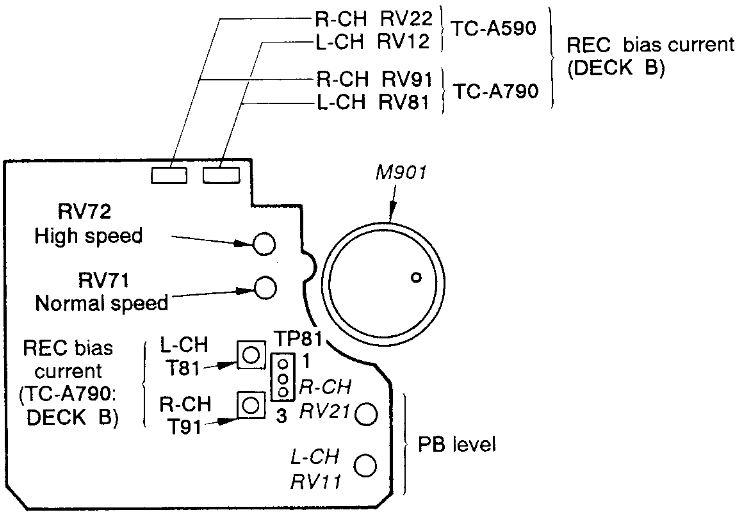
- **Adjusting Parts Location**

MAIN BOARD (Component Side)



11
1
CN504
SYSTEM CONTROL 1
JW6
JW5
REC level
R-CH RV351
L-CH RV-301
RV401
Rec monitor L/R balance

AUDIO BOARD (Conductor Side)



R-CH RV22
L-CH RV12
TC-A590
R-CH RV91
L-CH RV81
TC-A790
REC bias current (DECK B)
M901
RV72 High speed
RV71 Normal speed
REC bias current (TC-A790: DECK B)
L-CH T81
R-CH T91
TP81
1
3
R-CH RV21
L-CH RV11
PB level

SECTION 4
DIAGRAMS

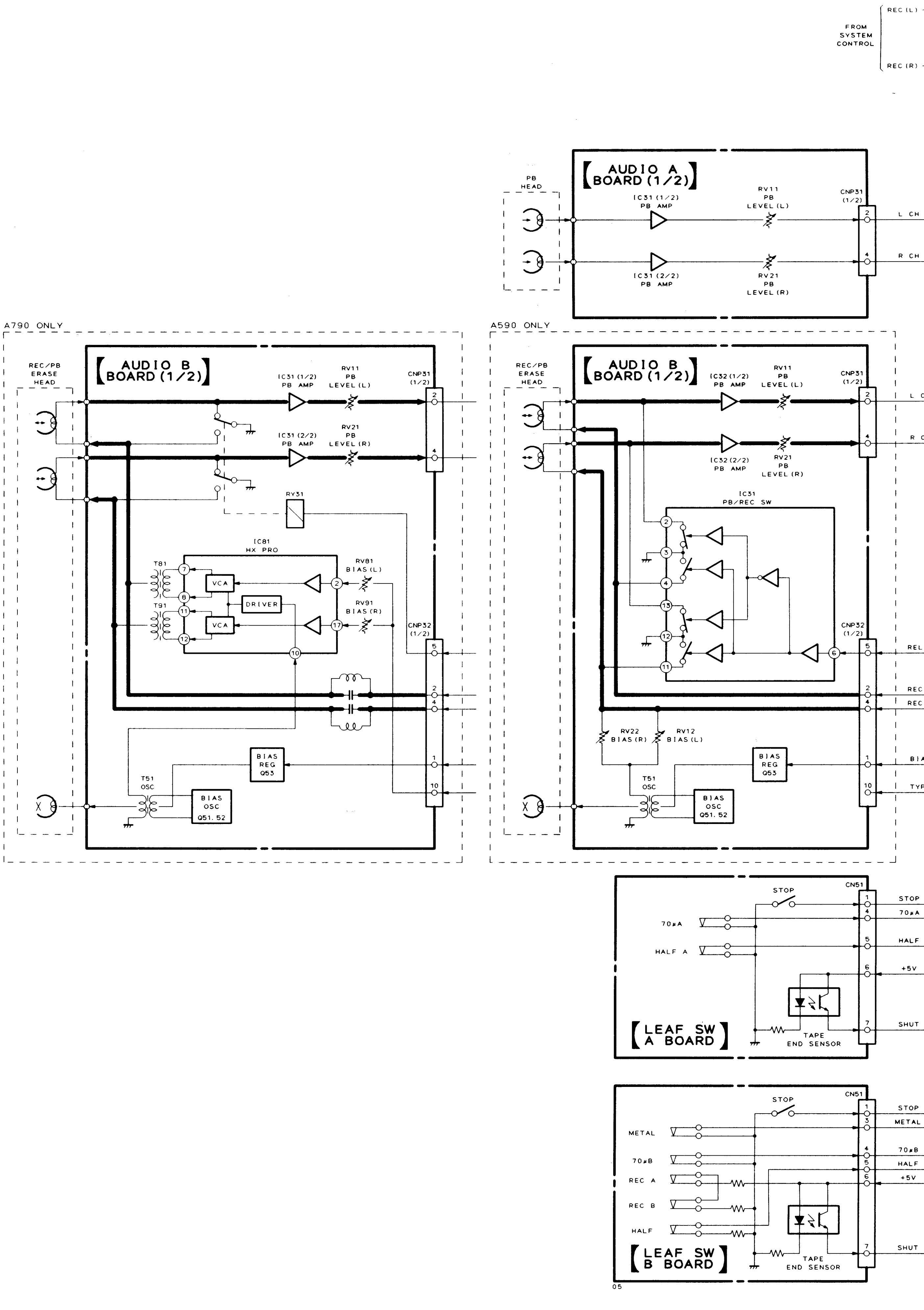
4-1. IC PIN FUNCTION DESCRIPTION
MAIN BOARD IC801 M38172M4-082FP

Pin No.	Pin Name	I/O	Description	Double Function
1	K4	I	8 bit input/output port with the similar function to P2 CMOS input level and CMOS3 state output form.	A-D converter input terminal.
2	K3	I		
3	K2	I		
4	K1	I		
5	REEL 2 (A)	O	8 bit input/output port with the similar function to P2. CMOS input level and N channel open drain output form. The input voltage to this port should be between 0V and VCC.	Functional terminal of serial I/02.
6	REEL 3 (A)	O		
7	REEL 1 (A)	O		
8	REEL 1 (B)	O		
9	REEL 3 (B)	O	8 bit input/output port with the similar function to P2. CMOS input level and N channel open drain output form. The input voltage to this port should be between 0V and VCC.	Functional terminal of serial I/01.
10	REEL 2 (B)	O		
11	AMS IN	I		
12	STOP SW (A)	I		
13	STOP SW (B)	I	6 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	
14	HALF (A)	I		
15	POWER IN	I	6 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	Event counter input terminal.
16	METAL	I		
17	S REEL IN (A)	I	6 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	PWM output terminal.
18	VOL OUT	O		
19	S REEL IN (B)	I	7 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	Timer output terminal.
20	S REEL OUT (A)	O		
21	S REEL OUT (B)	O	7 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	
22	L MUTE	O	7 bit input/output port with the similar function to P2. CMOS input level and CMOS3 state output form.	Interrupting input terminal.
23	R MUTE	O		
24	REC/PB	O		
25	OUT AUB	O		
26	IN AUB	I	1 bit CMOS input port.	Interrupting input terminal.
27	RESET	I	Reset status is set when this terminal is at "L" for more than 2 μs. However, inner reset is canceled for the stability of XCIN-XCOUT oscilliation in the slow velocity operation start mode.	
28	XC IN	–	Not used.	
29	XC OUT	–	Not used.	
30	X IN	I	Input/output terminal of main clock generation circuit which connects ceramic resonator or crystal oscilliator between XIN and XOUT. Connect clock oscilliation point to XIN to leave XOUT open in the use of outer clock.	
31	X OUT	O		
32	VSS	–	GND	
33	PASS	O	8 bit input/output port. Input/output can be selected by bit unit in certain program. Input mode in reset. TTL input level and CMOS3 state output form.	
34	PB A/B	O		
35	X1/X2	O		
36	1599 MUTE	O		
37	BIAS	O		
38	RELAY	O		
39	DOLBY B/C	O		
40	DOLBY ON/OFF	O		

Pin No.	Pin Name	I/O	Descriptio
41		–	Not used.
42	7G	O	8 bit output port with the similar fu
43	6G	O	
44	5G	O	
45	4G	O	
46	3G	O	
47	2G	O	
48	1G	O	
49	P16	O	8 bit output port and high level pre open drain output. Pull-down resis VEE terminal. "L" level in reset.
50	P15	O	
51	P14	O	
52	P13	O	
53	P12	O	
54	P11	O	
55	P10	O	
56	P9	O	
57	P8	O	8 bit output port with the similar fu
58	P7	O	
59	P6	O	
60	P5	O	
61	P4	O	
62	P3	O	
63	P2	O	
64	P1	O	
65		–	Not used.
66		–	Not used.
67	AMS GAIN SELECT	O	8 bit input/output port with the CMOS input level and high lev channel open drain output forr resistance is not built in.
68	C MOT H/L	O	
69	C MOT (B)	O	
70	C MOT (A)	O	
71	VERSION	I	
72	TEST	I	
73	VCC	–	+5 V
74	VEE	–	Apply voltage supplying to pull-dc
75	AVSS	–	GND input terminal of A-D conve
76	VREF	–	Reference voltage input terminal o
77	VOL DATE	I	8 bit input/output port with the CMOS input level and CMOS3 sta
78	HALF (B)	I	
79	METER (R)	I	
80	METER (L)	I	

Description	Double Function
the similar function to P0.	FLD automatic indication terminal.
igh level pressure-resistant P channel ll-down resistance is built in between vel in reset.	FLD automatic indication terminal.
the similar function to P0.	FLD automatic indication terminal.
rt with the similar function to P2 nd high level pressure-resistance P output form. However, pull-down in.	FLD automatic indication terminal.
ing to pull-down resistance of port P0, P1, P2 and P3.	
f A-D converter. Add the same electric potential as VSS.	
ut terminal of A-D converter.	
rt with the similar function to P2 d CMOS3 state output form.	FLD automatic indication terminal.

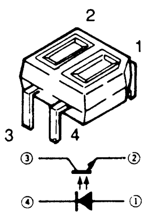
4-2. BLOCK DIAGRAM



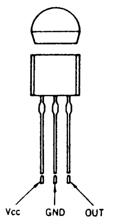
FROM SYSTEM CONTROL
REC (L)
REC (R)
PB HEAD
AUDIO A BOARD (1/2)
IC31 (1/2) PB AMP
IC31 (2/2) PB AMP
RV11 PB LEVEL (L)
RV21 PB LEVEL (R)
CNP31 (1/2)
L CH
R CH
A790 ONLY
REC/PB ERASE HEAD
AUDIO B BOARD (1/2)
IC31 (1/2) PB AMP
IC31 (2/2) PB AMP
RV11 PB LEVEL (L)
RV21 PB LEVEL (R)
CNP31 (1/2)
RV31
IC81 HX PRO
T81
T91
VCA
DRIVER
RV81 BIAS (L)
RV91 BIAS (R)
CNP32 (1/2)
BIAS REG Q53
T51 OSC
BIAS OSC Q51, 52
A590 ONLY
REC/PB ERASE HEAD
AUDIO B BOARD (1/2)
IC32 (1/2) PB AMP
IC32 (2/2) PB AMP
RV11 PB LEVEL (L)
RV21 PB LEVEL (R)
CNP31 (1/2)
IC31 PB/REC SW
CNP32 (1/2)
RV22 BIAS (R)
RV12 BIAS (L)
BIAS REG Q53
T51 OSC
BIAS OSC Q51, 52
REL
REC
REC
BIA
TYP
LEAF SW A BOARD
CN51
STOP
70μA
HALF A
TAPE END SENSOR
STOP
70μA
HALF
+5V
SHUT
LEAF SW B BOARD
CN51
STOP
METAL
70μB
REC A
REC B
HALF
TAPE END SENSOR
STOP
METAL
70μB
HALF
+5V
SHUT
05

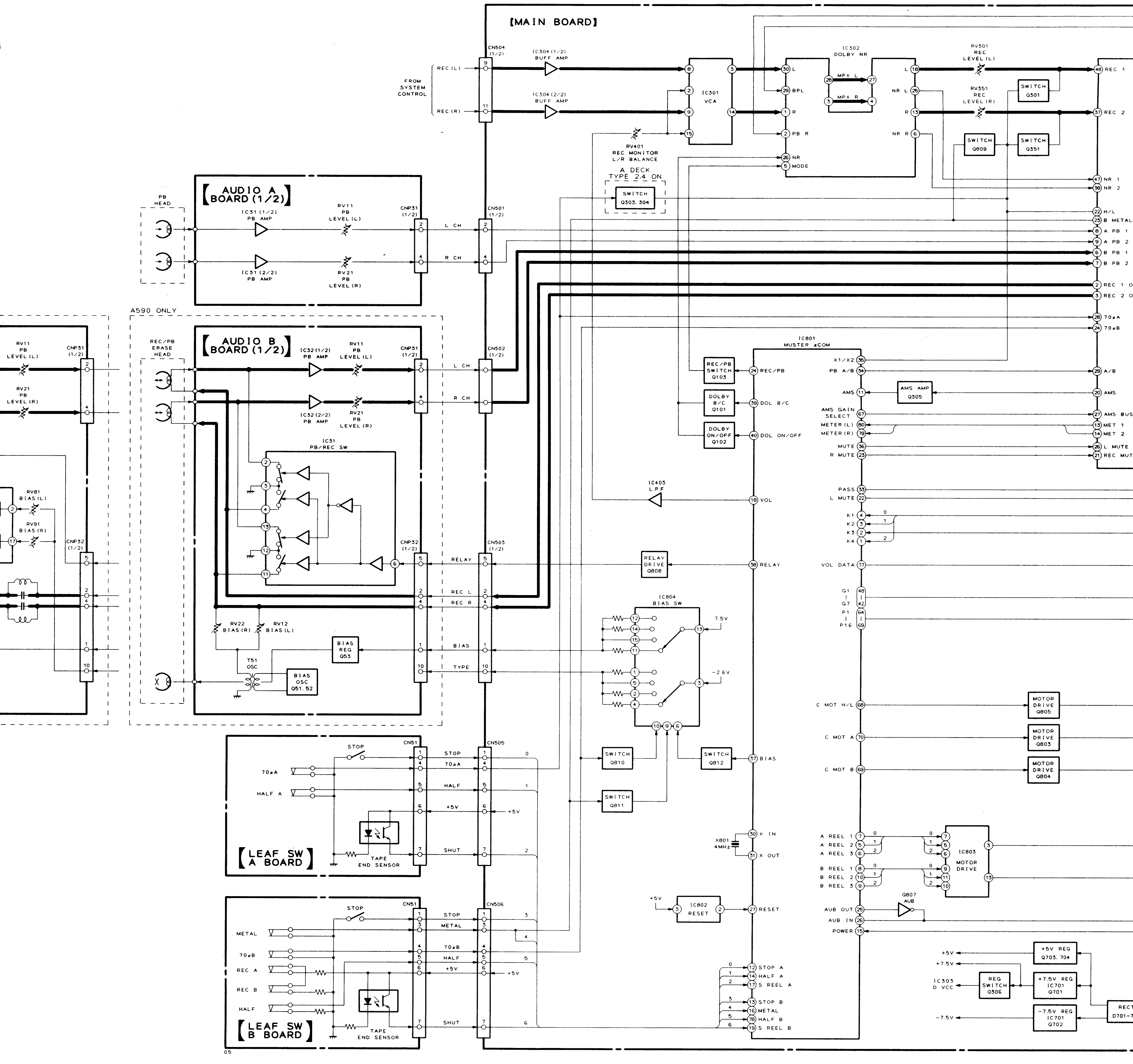
- **Semiconductor Lead Layouts**

NJL5165K-B (H1)



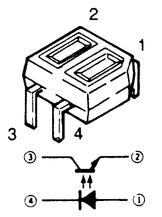
PST600E-T



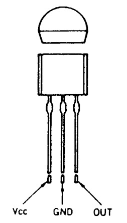

[MAIN BOARD]
CN504 (1/2)
FROM SYSTEM CONTROL
REC (L)
REC (R)
IC304 (1/2) BUFF AMP
IC304 (2/2) BUFF AMP
IC301 VCA
IC302 DOLBY NR
MPX L
MPX R
RV301 REC LEVEL (L)
RV351 REC LEVEL (R)
SWITCH Q301
SWITCH Q809
SWITCH Q351
RV401 REC MONITOR L/R BALANCE
A DECK TYPE 2.4 ON
SWITCH Q303, 304
[AUDIO A BOARD (1/2)]
PB HEAD
IC31 (1/2) PB AMP
IC31 (2/2) PB AMP
RV11 PB LEVEL (L)
RV21 PB LEVEL (R)
CNP31 (1/2)
CN501 (1/2)
L CH
R CH
A590 ONLY
[AUDIO B BOARD (1/2)]
REC/PB ERASE HEAD
IC32 (1/2) PB AMP
IC32 (2/2) PB AMP
IC31 PB/REC SW
CNP32 (1/2)
CN502 (1/2)
CN503 (1/2)
RELAY
REC L
REC R
BIAS
TYPE
RV22 BIAS (R)
RV12 BIAS (L)
T51 OSC
BIAS OSC Q51, 52
BIAS REG Q53
RV81 BIAS (L)
RV91 BIAS (R)
IC801 MUSTER μCOM
REC/PB SWITCH Q103
DOLBY B/C Q101
DOLBY ON/OFF Q102
REC/PB
DOL B/C
DOL ON/OFF
AMS AMP Q305
IC403 L.P.F
VOL
RELAY DRIVE Q808
IC804 BIAS SW
7.5V
-2.6V
SWITCH Q810
SWITCH Q811
SWITCH Q812
X1/X2
PB A/B
AMS
AMS GAIN SELECT
METER (L)
METER (R)
MUTE
R MUTE
PASS
L MUTE
K1
K2
K3
K4
VOL DATA
G1
G7
P1
P16
C MOT H/L
C MOT A
C MOT B
MOTOR DRIVE Q805
MOTOR DRIVE Q803
MOTOR DRIVE Q804
X801 4MHz
X IN
X OUT
IC802 RESET
RESET
A REEL 1
A REEL 2
A REEL 3
B REEL 1
B REEL 2
B REEL 3
IC803 MOTOR DRIVE
Q807 AUB
AUB OUT
AUB IN
POWER
+5V REG Q703, 704
+7.5V REG IC701 Q701
-7.5V REG IC701 Q702
REG SWITCH Q306
IC303 D VCC
+5V
+7.5V
-7.5V
RECT D701-7
REC 1
REC 2
NR 1
NR 2
H/L
B METAL
A PB 1
A PB 2
B PB 1
B PB 2
REC 1 O
REC 2 O
70μA
70μB
A/B
AMS BUS
MET 1
MET 2
L MUTE
REC MUT
STOP A
HALF A
S REEL A
STOP B
METAL
HALF B
S REEL B
CN505
CN506
CN51
STOP
70μA
HALF A
HALF
SHUT
TAPE END SENSOR
[LEAF SW A BOARD]
[LEAF SW B BOARD]
METAL
70μB
REC A
REC B

• Semiconductor Lead Layouts

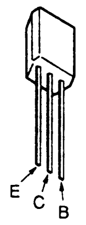
NJL5165K-B (H1)



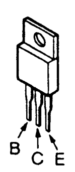
PST600E-T



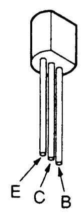
DTA114ES
DTA144ES
DTC114ES
DTC144ES
2SA1317-STU
2SC2603-EF
2SD2144S



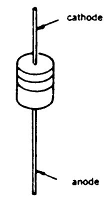
2SB1094-LK
2SD2012



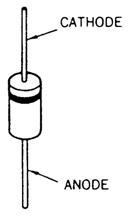
2SC403SP-51
2SD1387



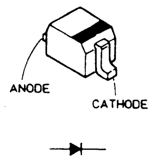
HZS6A1L
HZS9A2L
UZL-7L2
10E2N

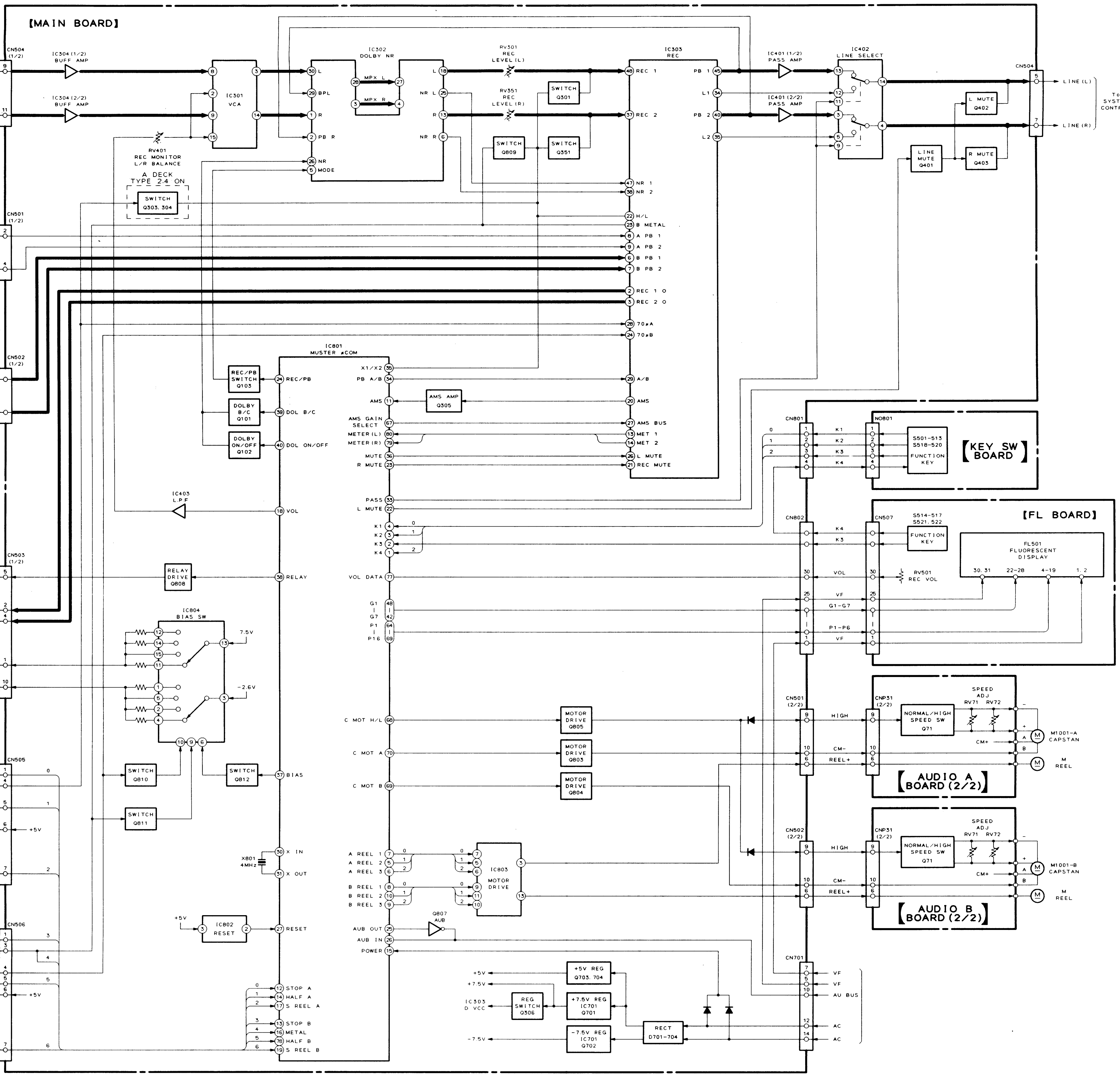

cathode
anode

1N4148M


CATHODE
ANODE

1SE352

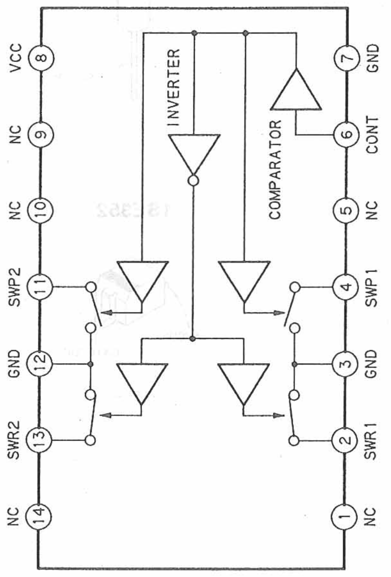

ANODE
CATHODE


[MAIN BOARD]
CN504 (1/2)
IC304 (1/2) BUFF AMP
IC304 (2/2) BUFF AMP
IC301 VCA
IC302 DOLBY NR
MPX L
MPX R
RV301 REC LEVEL (L)
RV351 REC LEVEL (R)
SWITCH Q301
SWITCH Q809
SWITCH Q351
IC303 REC
IC401 (1/2) PASS AMP
IC401 (2/2) PASS AMP
IC402 LINE SELECT
L MUTE Q402
R MUTE Q403
LINE MUTE Q401
CN504
LINE (L)
LINE (R)
To SYSTEM CONTROL
RV401 REC MONITOR L/R BALANCE
A DECK TYPE 2.4 ON
SWITCH Q303, 304
CN501 (1/2)
CN502 (1/2)
CN503 (1/2)
REC 1
REC 2
PB 1
PB 2
L1
L2
NR 1
NR 2
H/L
B METAL
A PB 1
A PB 2
B PB 1
B PB 2
REC 1 O
REC 2 O
70μA
70μB
IC801 MUSTER μCOM
X1/X2
PB A/B
AMS
AMS GAIN SELECT
METER (L)
METER (R)
MUTE
R MUTE
PASS
L MUTE
K1
K2
K3
K4
VOL DATA
G1 | G7
P1 | P16
REC/PB SWITCH Q103
DOLBY B/C Q101
DOLBY ON/OFF Q102
AMS AMP Q305
A/B
AMS BUS
MET 1
MET 2
L MUTE
REC MUTE
IC403 LPF
VOL
RELAY DRIVE Q808
RELAY
IC804 BIAS SW
7.5V
-2.6V
SWITCH Q810
SWITCH Q812
SWITCH Q811
BIAS
CN505
+5V
X801 4MHz
X IN
X OUT
CN506
IC802 RESET
RESET
STOP A
HALF A
S REEL A
STOP B
METAL
HALF B
S REEL B
C MOT H/L
C MOT A
C MOT B
MOTOR DRIVE Q805
MOTOR DRIVE Q803
MOTOR DRIVE Q804
A REEL 1
A REEL 2
A REEL 3
B REEL 1
B REEL 2
B REEL 3
IC803 MOTOR DRIVE
Q807 AUB
AUB OUT
AUB IN
POWER
+5V REG Q703, 704
+7.5V REG IC701 Q701
-7.5V REG IC701 Q702
REG SWITCH Q306
IC303 D VCC
RECT D701-704
+5V
+7.5V
-7.5V
CN801
NO801
S501-513 S518-520 FUNCTION KEY
[KEY SW BOARD]
CN802
CN507
S514-517 S521, 522 FUNCTION KEY
[FL BOARD]
FL501 FLUORESCENT DISPLAY
RV501 REC VOL
VF
G1-G7
P1-P6
CN501 (2/2)
CNP31 (2/2)
HIGH
CM-
REEL+
NORMAL/HIGH SPEED SW Q71
SPEED ADJ RV71 RV72
M1001-A CAPSTAN
M REEL
[AUDIO A BOARD (2/2)]
CN502 (2/2)
M1001-B CAPSTAN
[AUDIO B BOARD (2/2)]
CN701
VF
AU BUS
AC

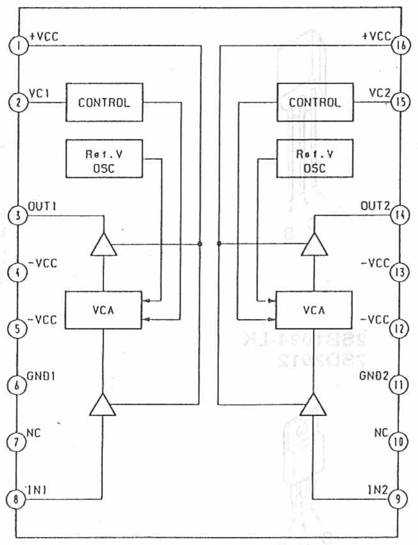
4-3. SCHEMATIC DIAGRAM

- **IC Block Diagrams**

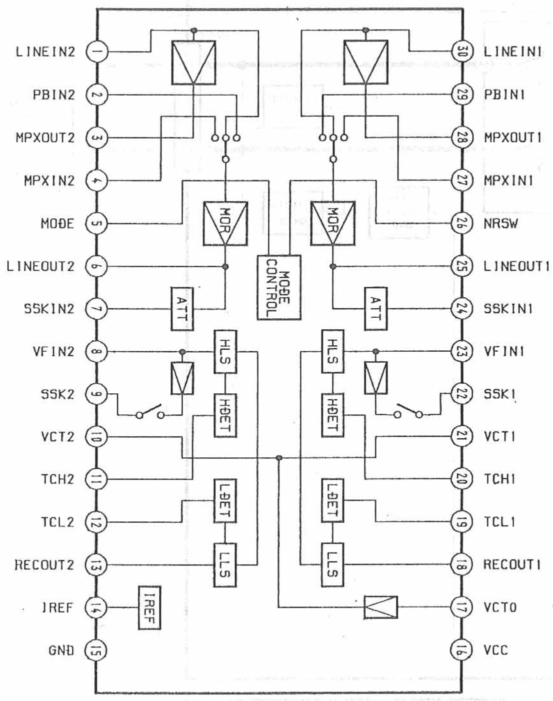
TC-A590
AUDIO (B) BOARD
IC31 μPC1330GR


VCC 8
GND 7
NC 9
CONT 6
NC 10
NC 5
SWP2 11
SWP1 4
GND 12
GND 3
SWR2 13
SWR1 2
NC 14
NC 1
INVERTER
COMPARATOR

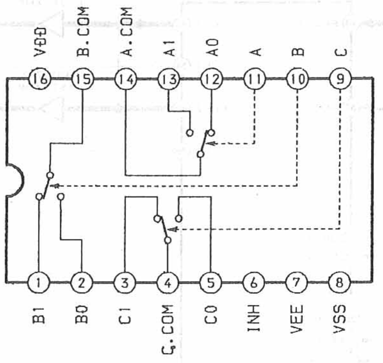
MAIN BOARD
IC301 M5283P


+VCC 1
+VCC 16
VC1 2
VC2 15
CONTROL
CONTROL
Ref.V OSC
Ref.V OSC
OUT1 3
OUT2 14
-VCC 4
-VCC 13
-VCC 5
-VCC 12
VCA
VCA
GND1 6
GND2 11
NC 7
NC 10
IN1 8
IN2 9

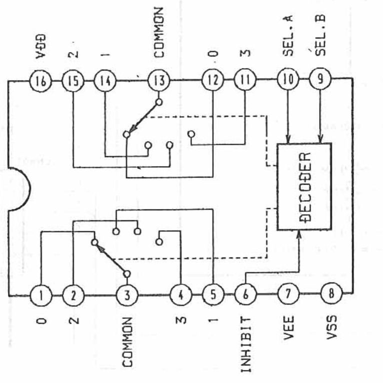
MAIN BOARD
IC302 CXA1332M


LINEIN2 1
PBIN2 2
MPXOUT2 3
MPXIN2 4
MODE 5
LINEOUT2 6
SSKIN2 7
VFIN2 8
SSK2 9
VCT2 10
TCH2 11
TCL2 12
RECOUT2 13
IREF 14
GND 15
LINEIN1 30
PBIN1 29
MPXOUT1 28
MPXIN1 27
NRSW 26
LINEOUT1 25
SSKIN1 24
VFIN1 23
SSK1 22
VCT1 21
TCH1 20
TCL1 19
RECOUT1 18
VCTO 17
VCC 16
MOR
MODE CONTROL
ATT
HLS
HDET
LDET
LLS
IREF

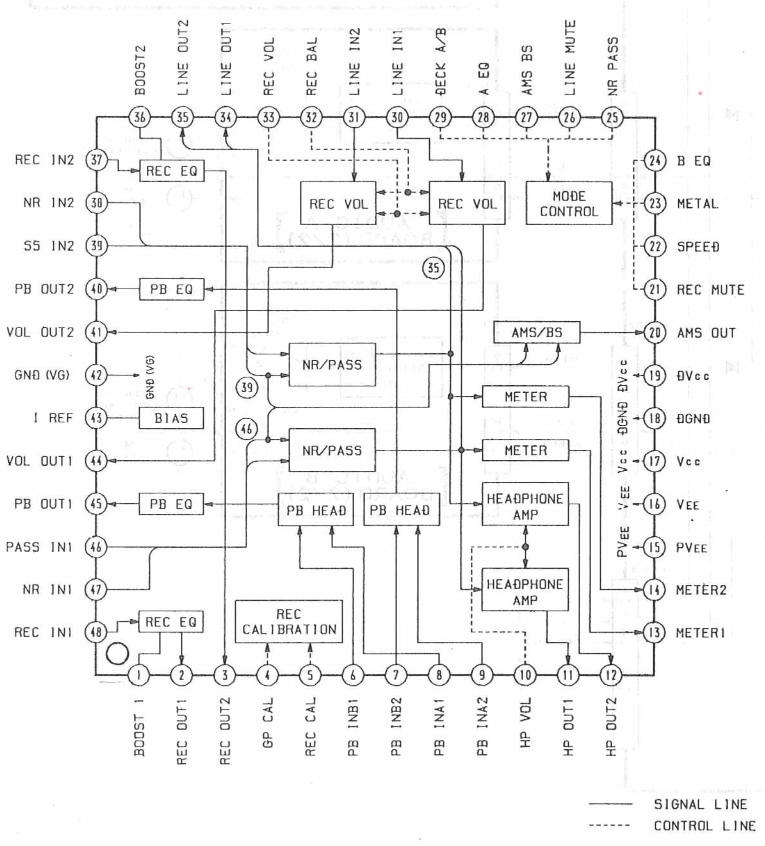
MAIN BOARD
IC402 MC14053BCP

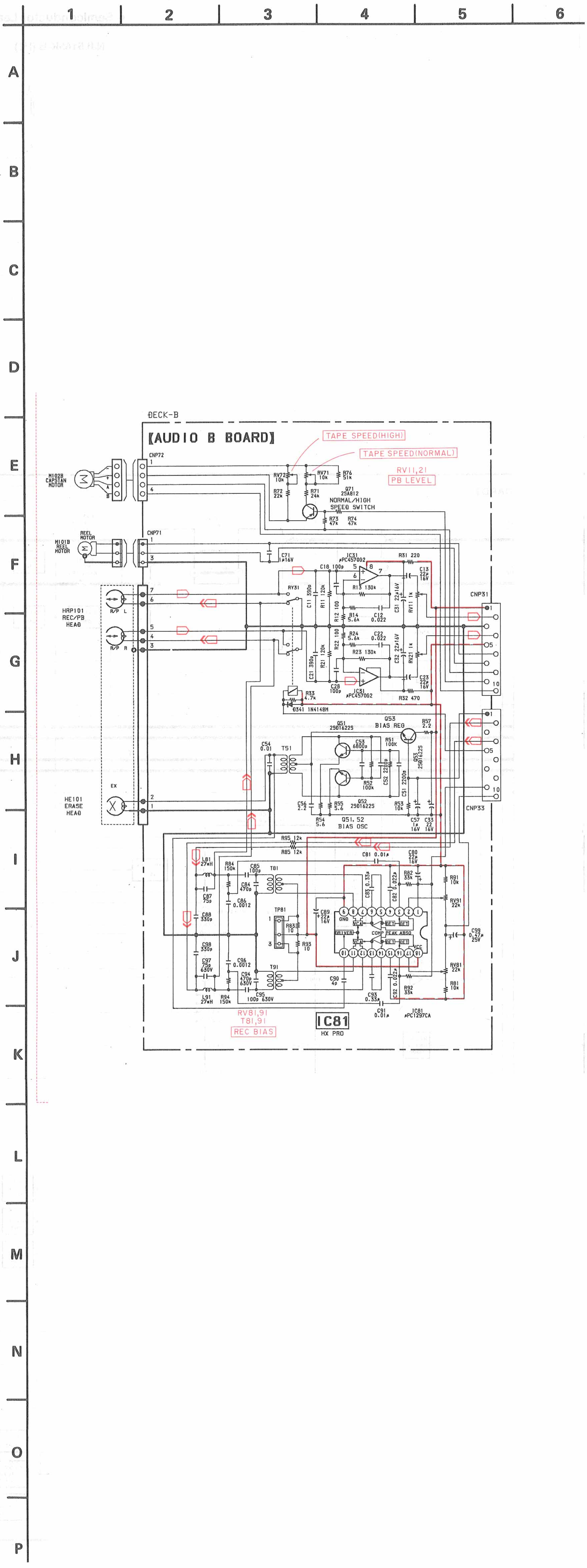

VDD 16
B.COM 15
A.COM 14
A1 13
A0 12
A 11
B 10
C 9
B1 1
B0 2
C1 3
C.COM 4
C0 5
INH 6
VEE 7
VSS 8

MAIN BOARD
IC804 MC14052BCP


VDD 16
2 15
1 14
COMMON 13
0 12
3 11
SEL.A 10
SEL.B 9
DECODER
0 1
2 2
COMMON 3
3 4
1 5
INHIBIT 6
VEE 7
VSS 8

MAIN BOARD
IC303 CXA1599Q


BOOST2 36
LINE OUT2 35
LINE OUT1 34
REC VOL 33
REC BAL 32
LINE IN2 31
LINE IN1 30
DECK A/B 29
A EQ 28
AMS BS 27
LINE MUTE 26
NR PASS 25
B EQ 24
METAL 23
SPEED 22
REC MUTE 21
AMS OUT 20
DVcc 19
DGND 18
Vcc 17
VEE 16
PVEE 15
METER2 14
METER1 13
REC IN2 37
NR IN2 38
SS IN2 39
PB OUT2 40
VOL OUT2 41
GND (VG) 42
I REF 43
VOL OUT1 44
PB OUT1 45
PASS IN1 46
NR IN1 47
REC IN1 48
BOOST 1 1
REC OUT1 2
REC OUT2 3
GP CAL 4
REC CAL 5
PB INB1 6
PB INB2 7
PB INA1 8
PB INA2 9
HP VOL 10
HP OUT1 11
HP OUT2 12
REC EQ
REC VOL
REC VOL
MODE CONTROL
PB EQ
AMS/BS
NR/PASS
METER
BIAS
NR/PASS
METER
PB EQ
PB HEAD
PB HEAD
HEADPHONE AMP
HEADPHONE AMP
REC EQ
REC CALIBRATION
SIGNAL LINE
CONTROL LINE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A
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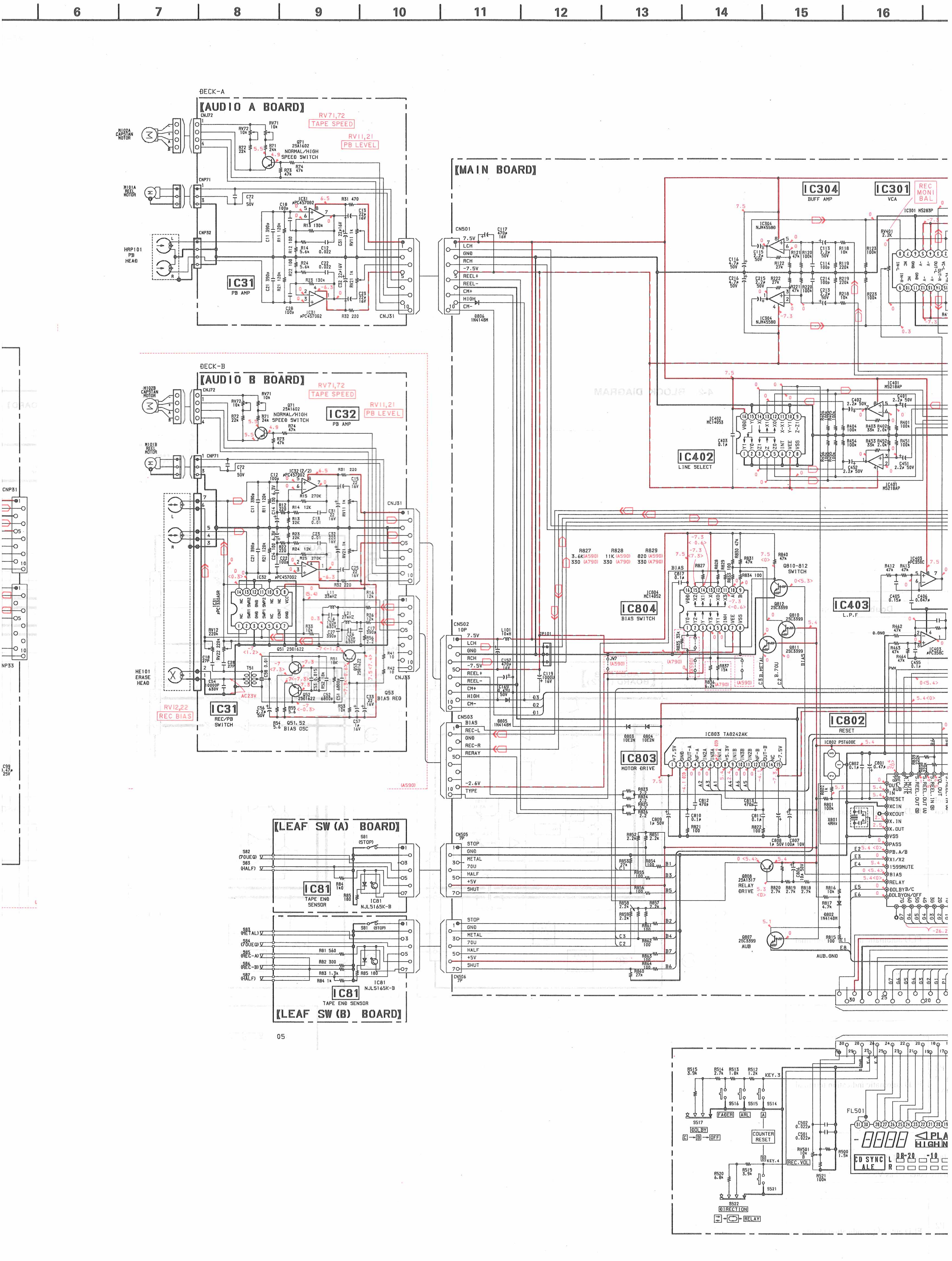
C
D
E
F
G
H
I
J
K
L
M
N
O
P
DECK-B
[AUDIO B BOARD]
TAPE SPEED(HIGH)
TAPE SPEED(NORMAL)
RV11,21
PB LEVEL
CNP72
M102B CAPSTAN MOTOR
RV72 10k
RV71 10k
R74 51k
R72 22k
R71 24k
Q71 2SA812 NORMAL/HIGH SPEED SWITCH
R73 47k
R74 47k
CNP71
M101B REEL MOTOR
C71 1μ16V
IC31 μPC457002
R31 220
C18 100p
C13 22μ 16V
RY31
R13 130k
HRP101 REC/PB HEAD
R/P L
R/P R
C11 390p
R11 120k
R12 100
R14 5.6k
C12 0.022
C31 22μ16V
RV11
CNP31
R22 100
R24 5.6k
C22 0.022
C21 390p
R21 120k
R23 130k
C32 22μ16V
RV21 1k
C23 22μ 16V
C28 100p
R33 4.7k
IC31 μPC457002
R32 470
D341 1N4148M
Q51 2SD1622S
Q53 BIAS REG
R57 2.2
C54 0.01
T51
C53 6800p
R51 100K
Q53 2SD1622S
R52 100k
C52 2200p
C51 2200p
HE101 ERASE HEAD
EX
C54 2.2
R55 5.6
Q52 2SD1622S
R53 10k
C57 1μ 16V
C33 22 16V
R54 5.6
Q51, 52 BIAS OSC
CNP33
R95 12k
R85 12k
C81 0.01μ
C80 22μ 16V
L81 27μH
R84 150k
C85 100p
T81
C84 470p
C83 0.33μ
C82 0.022μ
R82 33k
R91 10k
C87 75p
C86 0.0012
TP81
C89 22μ 16V
RV91 22k
C88 330p
R83 10
R93 10
C99 0.47μ 25V
C98 330p
C97 75p 630V
C96 0.0012
C94 470p 630V
T91
C90 4p
RV81 22k
R81 10k
L91 27μH
R94 150k
C95 100p 630V
C93 0.33μ
C92 0.022μ
R92 33k
C91 0.01μ
IC81 μPC1297CA
RV81,91 T81,91 REC BIAS
IC81 HX PRO


6
7
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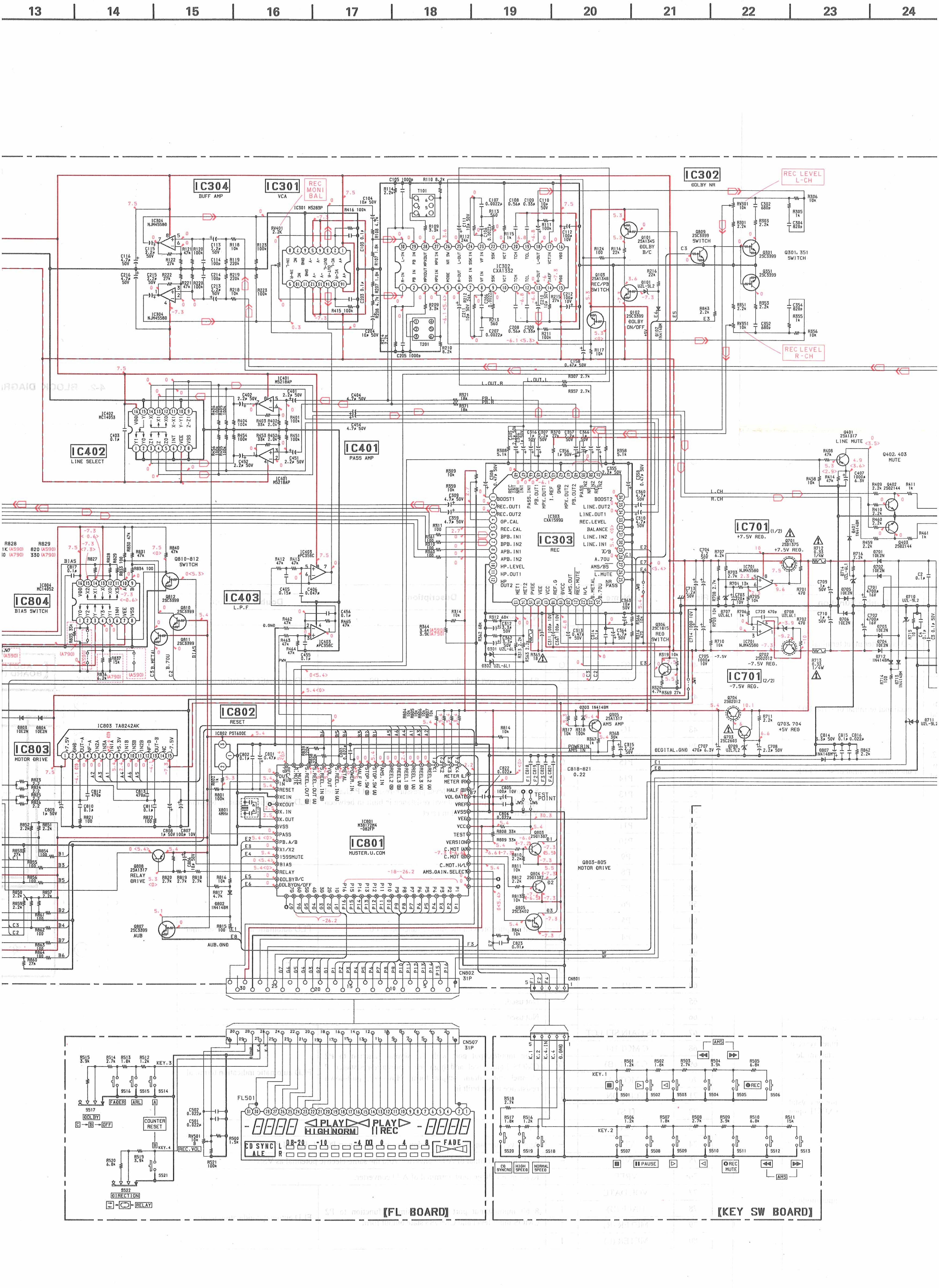
15
16
DECK-A
[AUDIO A BOARD]
RV71,72 TAPE SPEED
RV11,21 PB LEVEL
M102A CAPSTAN MOTOR
M101A REEL MOTOR
HRP101 PB HEAD
Q71 2SA1602 NORMAL/HIGH SPEED SWITCH
IC31 PB AMP
IC31 μPC457002
CNJ72
CNP71
CNP32
CNJ31
[MAIN BOARD]
CN501
7.5V
LCH
GND
RCH
-7.5V
REEL+
REEL-
CM+
HIGH
CM-
D806 1N4148M
IC304 BUFF AMP
IC301 VCA
IC301 M5283P
IC304 NJM4558D
REC MONI BAL
IC402 LINE SELECT
IC402 MC14053
IC401 M5218AP
DECK-B
[AUDIO B BOARD]
IC32 PB AMP
M102B CAPSTAN MOTOR
M101B REEL MOTOR
HE101 ERASE HEAD
IC31 REC/PB SWITCH
IC31 μPC1330AGR
RV12,22 REC BIAS
Q51, 52 BIAS OSC
Q53 BIAS REG
Q51 2SD1622
Q52 2SD1622
CNJ33
CNP31
CNP33
(A590)
CN502 10P
CN503 BIAS
REC-L
GND
REC-R
RERAY
-2.6V
TYPE
IC804 BIAS SWITCH
IC804 MC14052
Q810-812 SWITCH
Q812 2SC3399
Q810 2SC3399
Q811 2SC3399
IC403 L.P.F
IC403 μPC358C
IC803 MOTOR DRIVE
IC803 TA8242AK
IC802 RESET
IC802 PST600E
D803 10E2N
D804 10E2N
D805 1N4148M
X801 4MHz
Q808 2SA1317 RELAY DRIVE
Q807 2SC3399 AUB
D802 1N4148M
AUB.GND
CN505 7P
STOP
GND
METAL
70U
HALF
+5V
SHUT
CN506 7P
[LEAF SW (A) BOARD]
S81 (STOP)
S82 (70UEQ)
S83 (HALF)
IC81 TAPE END SENSOR
IC81 NJL5165K-B
S83 (METAL)
S84 (70UEQ)
S85 (REC-A)
S86 (REC-B)
S87 (HALF)
[LEAF SW (B) BOARD]
05
S517 DOLBY
C - B - OFF
S516 FADER
S515 ARL
S514 A
COUNTER RESET
KEY.3
KEY.4
RV501 REC.VOL
S522 DIRECTION
RELAY
FL501
CD SYNC ALE
HIGH N
DD-20
-10


13
14
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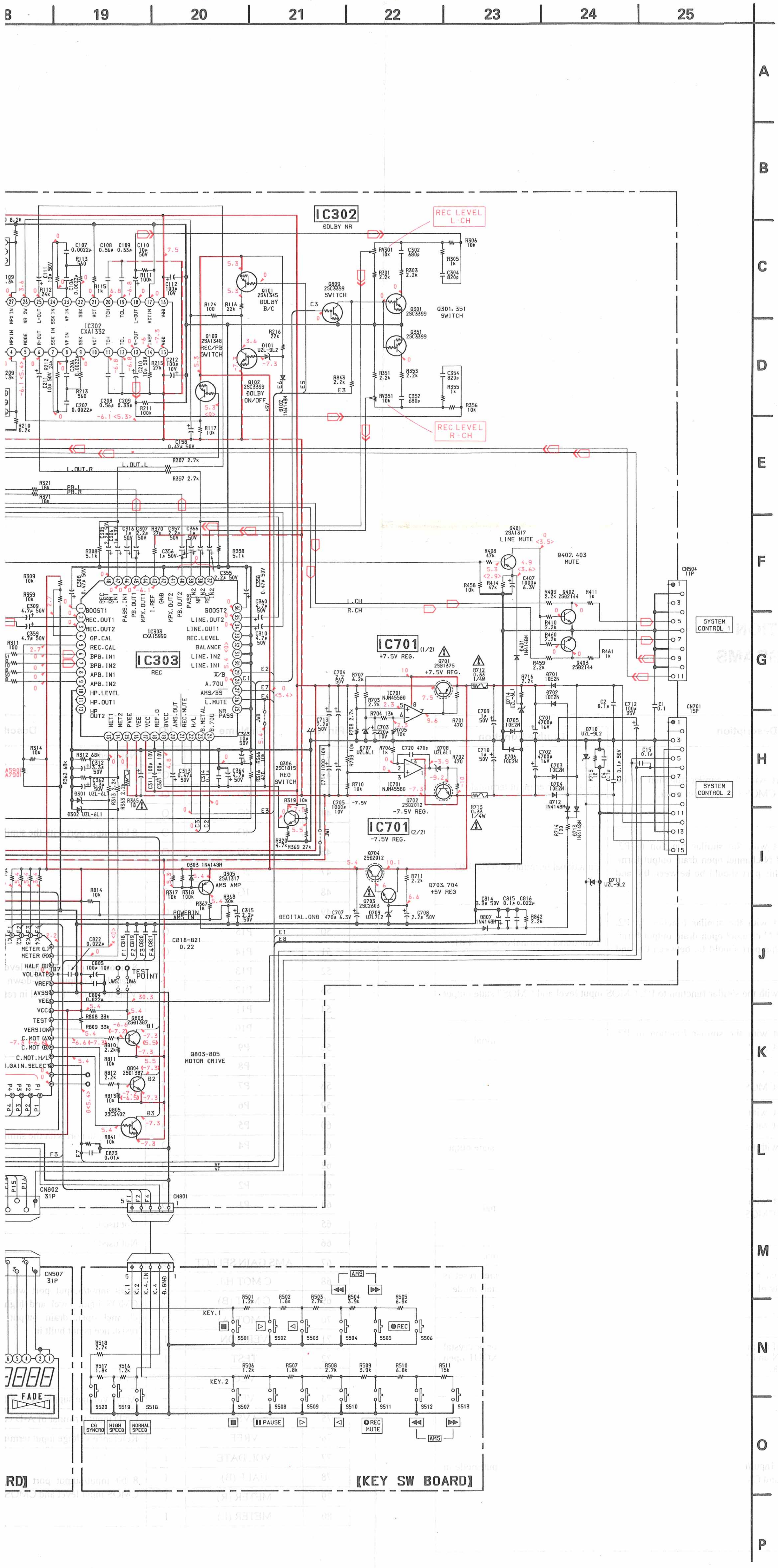
18
19
20
21
22
23
24
IC304
BUFF AMP
IC301
VCA
REC MONI BAL
IC302
DOLBY NR
REC LEVEL L-CH
REC LEVEL R-CH
T101
T201
IC302 CXA1332
Q101 2SA1345 DOLBY B/C
Q102 2SC3399 DOLBY ON/OFF
Q103 2SA1348 REC/PB SWITCH
Q809 2SC3399 SWITCH
Q301, 351 SWITCH
IC401 M5218AP
IC402 MC14053
IC402
LINE SELECT
IC401
PASS AMP
IC303 CXA1599Q
IC303
REC
Q401 2SA1317 LINE MUTE
Q402, 403 MUTE
L.CH
R.CH
L.OUT.R
L.OUT.L
IC701
+7.5V REG.
Q701 2SB1375 +7.5V REG.
IC701 NJM4558D
Q702 2SD2012 -7.5V REG.
IC701
-7.5V REG.
Q703, 704 +5V REG
IC804 MC14052
IC804
BIAS SWITCH
BIAS
Q810-812 SWITCH
IC403 μPC358C
IC403
L.P.F
IC803 TA8242AK
IC803
MOTOR DRIVE
IC802 PST600E
IC802
RESET
IC801 M38172M4-082FP
IC801
MUSTER.U.COM
Q808 2SA1317 RELAY DRIVE
Q807 2SC3399 AUB
Q803-805 MOTOR DRIVE
Q305 2SA1317 AMS AMP
AUB.GND
DEGITAL.GND
TEST POINT
CN802 31P
CN801
CN507 31P
FL501
CD SYNC ALE
PLAY
HIGH NORM
PLAY
REC
FADE
[FL BOARD]
[KEY SW BOARD]
KEY.1
KEY.2
KEY.3
KEY.4
FADER
ARL
DOLBY
COUNTER RESET
DIRECTION
RELAY
REC.VOL
CD SYNCRO
HIGH SPEED
NORMAL SPEED
PAUSE
REC MUTE
AMS
REC


19
20
21
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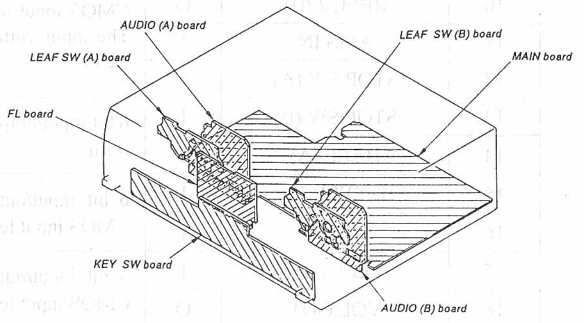
23
24
25
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
IC302
DOLBY NR
REC LEVEL L-CH
REC LEVEL R-CH
IC302 CXA1332
Q101 2SA1345 DOLBY B/C
Q103 2SA1348 REC/PB SWITCH
Q102 2SC3399 DOLBY ON/OFF
D101 UZL-9L2
Q809 2SC3399 SWITCH
Q301 2SC3399
Q351 2SC3399
Q301, 351 SWITCH
RV301 10k
RV351 10k
L.OUT.R
L.OUT.L
PB.L
PB.R
IC303
REC
IC303 CXA1599Q
Q401 2SA1317 LINE MUTE
Q402, 403 MUTE
Q402 2SD2144
Q403 2SD2144
CN504 11P
SYSTEM CONTROL 1
SYSTEM CONTROL 2
CN701 15P
IC701 (1/2) +7.5V REG.
IC701 (2/2) -7.5V REG.
Q701 2SB1375 +7.5V REG.
Q702 2SD2012 -7.5V REG.
Q704 2SD2012
Q703 2SC2603
Q703, 704 +5V REG
IC701 NJM4558D
Q306 2SC1815 REC SWITCH
Q305 2SA1317 AMS AMP
D303 1N4148M
POWER IN
AMS IN
DEGITAL.GND
Q803-805 MOTOR DRIVE
Q803 2SD1387
Q804 2SD1387
Q805 2SC5402
TEST POINT
CN802 31P
CN801
CN507 31P
KEY.1
KEY.2
AMS
REC
PAUSE
REC MUTE
CD SYNCRO
HIGH SPEED
NORMAL SPEED
FADE
RD]
[KEY SW BOARD]

● Circuit Boards Location


AUDIO (A) board
LEAF SW (B) board
LEAF SW (A) board
MAIN board
FL board
KEY SW board
AUDIO (B) board

Note on Printed Wiring Board:

- ⌐┘⇤ : indicates side identified with part number.
- ● : Through hole.
- ▒ : Pattern of the rear side.
- ▒ : Pattern from the side which enables seeing.

Note on Schematic Diagram:

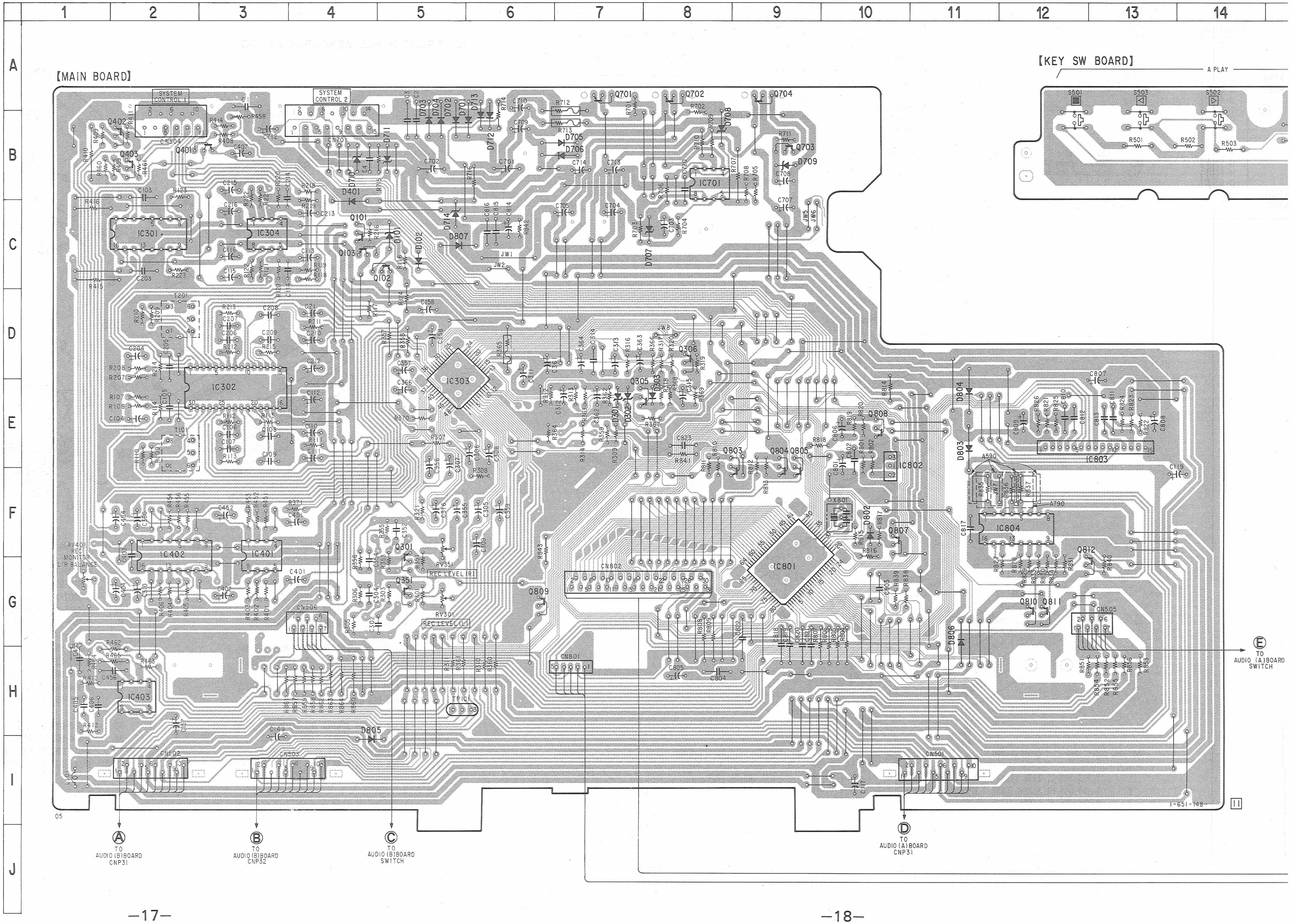
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ⊣∿⊢ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬ : B + Line.
- ▬ ▬ ▬ : B − Line.
- ☐ : panel designation.
- ☐ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY (DECK A)
  《 》: PLAY (DECK B)
  < > : REC (DECK B)
  * : Impossible to measure
- Voltages are taken with a VOM (10 MΩ/V).
- Signal path.
  ▷ : PB (DECK B)
  ▷》 : REC (DECK B)

4-4. MAIN SECTION PRINTED WIRING BOARDS

- See page 10 for Semiconductor Lead Layouts and pages 19 and 20 for MD section Printed Wiring Boards.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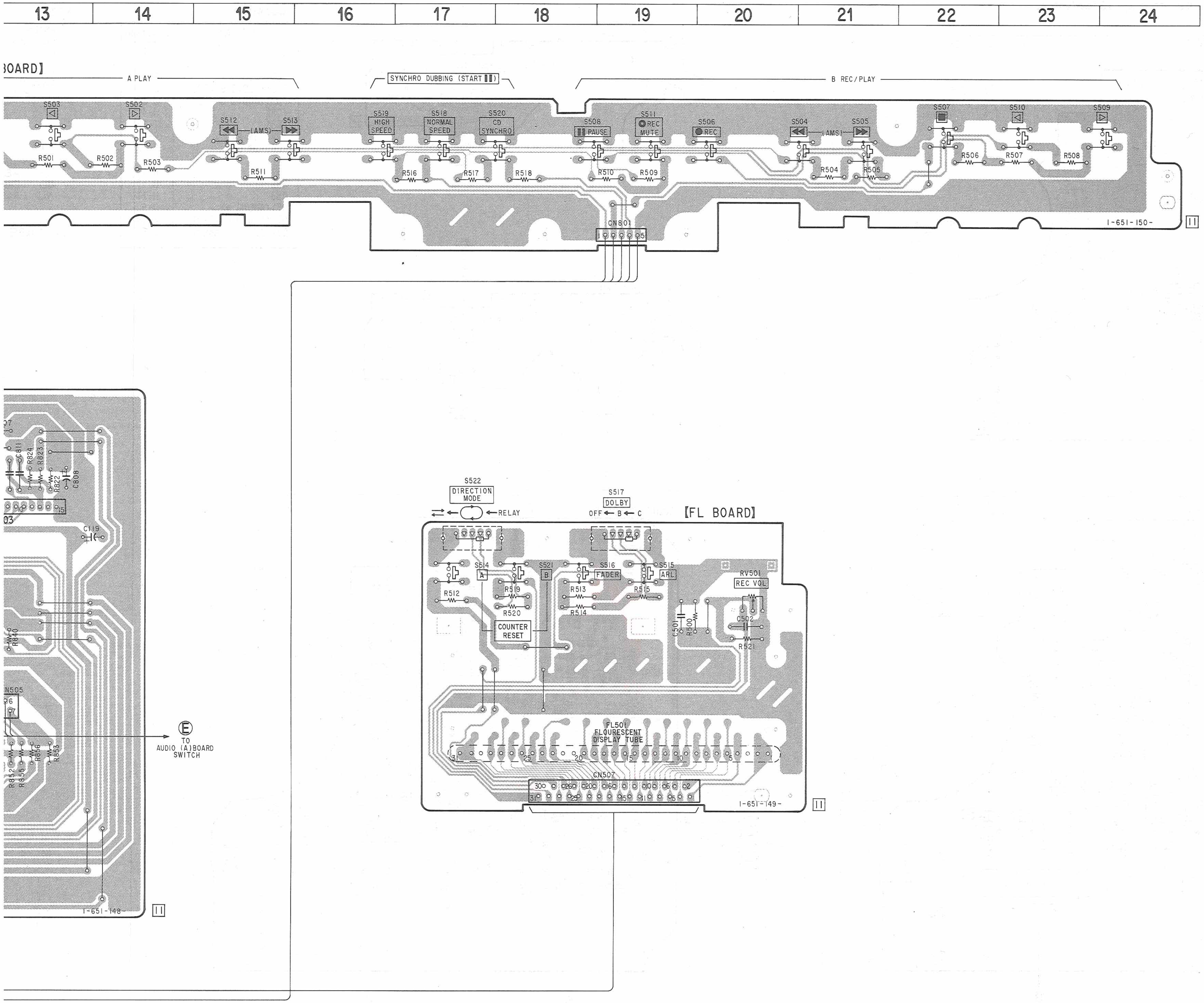
11
12
13
14
A
B
C
D
E
F
G
H
I
J
【MAIN BOARD】
【KEY SW BOARD】
A PLAY
SYSTEM CONTROL 1
SYSTEM CONTROL 2
IC301
IC302
IC303
IC304
IC401
IC402
IC403
IC701
IC801
IC802
IC803
IC804
CN501
CN502
CN503
CN504
CN505
CN506
CN701
CN801
CN802
S501
S502
S503
RV401 REC MONITOR L/R BALANCE
RV351 REC LEVEL (R)
RV301 REC LEVEL (L)
TP101
1-651-148-
11
05
Ⓐ TO AUDIO (B) BOARD CNP31
Ⓑ TO AUDIO (B) BOARD CNP32
Ⓒ TO AUDIO (B) BOARD SWITCH
Ⓓ TO AUDIO (A) BOARD CNP31
Ⓔ TO AUDIO (A) BOARD SWITCH


13
14
15
16
17
18
19
20
21
22
23
24
OARD]
A PLAY
SYNCHRO DUBBING (START ⏸)
B REC/PLAY
S503
S502
S512
S513
(AMS)
S519 HIGH SPEED
S518 NORMAL SPEED
S520 CD SYNCHRO
S508 ⏸ PAUSE
S511 ● REC MUTE
S506 ● REC
S504
S505
(AMS)
S507
S510
S509
R501
R502
R503
R511
R516
R517
R518
R510
R509
R504
R505
R506
R507
R508
CN801
1-651-150-
11
C811
R824
R823
R822
C808
C119
N505
R840
E
TO AUDIO (A) BOARD SWITCH
R852
R855
R856
R853
1-651-148-
11
S522 DIRECTION MODE
RELAY
S517 DOLBY
OFF ← B ← C
[FL BOARD]
S514 A
S521 B
S516 FADER
S515 ARL
RV501 REC VOL
R512
R519
R520
R513
R514
R515
COUNTER RESET
C501
R500
C502
R521
FL501 FLOURESCENT DISPLAY TUBE
CN507
1-651-149-
11

Semiconductor Location

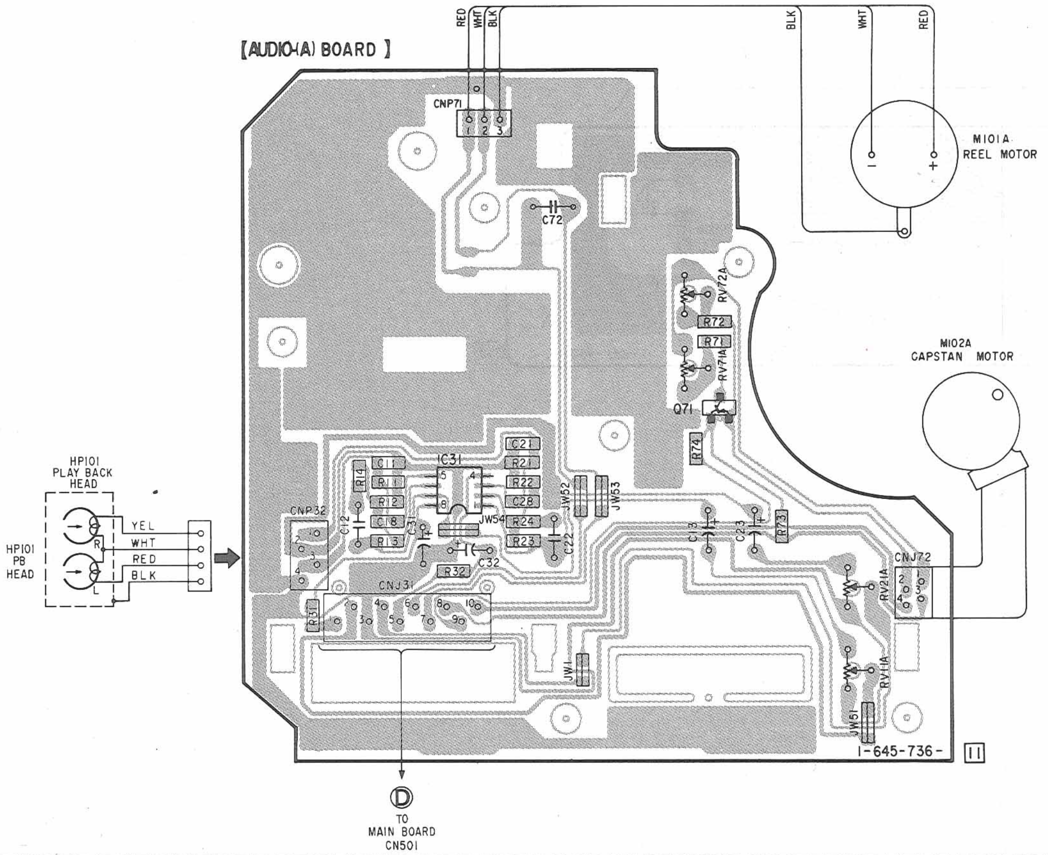
Ref. No.	Location
D101	C-5
D102	C-5
D301	E-7
D302	E-7
D303	E-8
D401	C-4
D701	B-5
D702	B-5
D703	B-5
D704	B-5
D705	B-7
D706	B-7
D707	C-8
D708	B-8
D709	B-9
D710	B-4
D711	B-5
D712	B-6
D713	B-6
D714	C-5
D802	F-10
D803	E-11
D804	E-11
D805	I-4
D806	G-11
D807	C-5
IC301	C-2
IC302	E-3
IC303	E-5
IC304	C-3
IC401	F-3
IC402	F-2
IC403	F-2
IC701	B-8
IC801	G-9
IC802	E-10
IC803	E-13
IC804	F-12
Q101	C-4
Q102	C-5
Q103	C-4
Q301	G-5
Q305	E-8
Q306	D-8
Q351	G-5
Q401	B-2
Q402	B-2
Q403	B-2
Q701	A-7
Q702	A-8
Q703	B-9
Q704	A-9
Q803	E-9
Q804	E-9
Q805	E-9
Q807	F-10
Q808	E-10
Q809	G-6
Q810	G-12
Q811	G-12
Q812	G-13

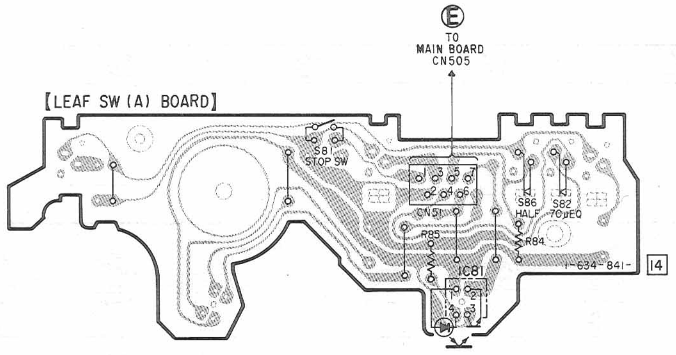
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

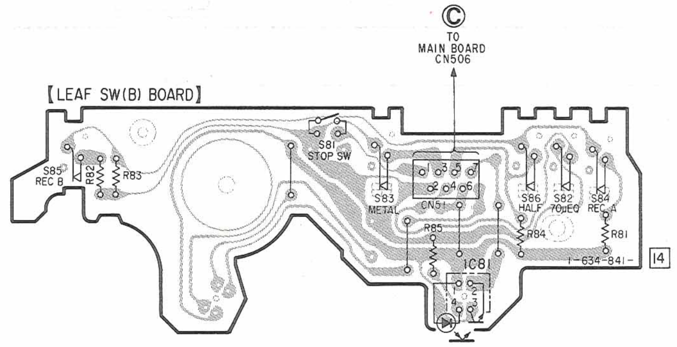
A B C D E F G H I J K L

4-5. MD SECTION PRINTED WIRING BOARDS

- See page 10 for Semiconductor Lead Layouts and page 16 for Notes.


[AUDIO-(A) BOARD]
RED
WHT
BLK
CNP71
C72
M101A
REEL MOTOR
M102A
CAPSTAN MOTOR
RV72A
R72
R71
RV71A
Q71
R74
HP101
PLAY BACK
HEAD
HP101
PB
HEAD
YEL
WHT
RED
BLK
CNP32
C12
R14
C11
R11
R12
C18
R13
IC31
C31
JW54
C32
R32
C21
R21
R22
C28
R24
R23
C22
JW52
JW53
C13
C23
R73
CNJ72
RV21A
RV11A
CNJ31
R31
JW1
JW51
1-645-736-
11
D
TO
MAIN BOARD
CN501


E
TO
MAIN BOARD
CN505
[LEAF SW (A) BOARD]
S81
STOP SW
CN51
S86
HALF
S82
70μEQ
R85
R84
IC81
1-634-841-
14


C
TO
MAIN BOARD
CN506
[LEAF SW(B) BOARD]
S85
REC B
R82
R83
S81
STOP SW
S83
METAL
CN51
S86
HALF
S82
70μEQ
S84
REC A
R85
R84
R81
IC81
1-634-841-
14

Ref. No.	Location
D31	J-10
IC31 (AUDIO A)	D-4
IC31 (AUDIO B A790)	J-11
IC31 (AUDIO B A590)	J-3
IC32	J-4
IC81	I-12
IC81 (SW A)	C-13
IC81 (SW B)	F-13
Q51	H-11
Q52	H-11
Q53	H-11
Q71 (AUDIO A)	D-5
Q71 (AUDIO B A790)	I-14
Q71 (AUDIO B A590)	J-6

- **Semiconductor Location**

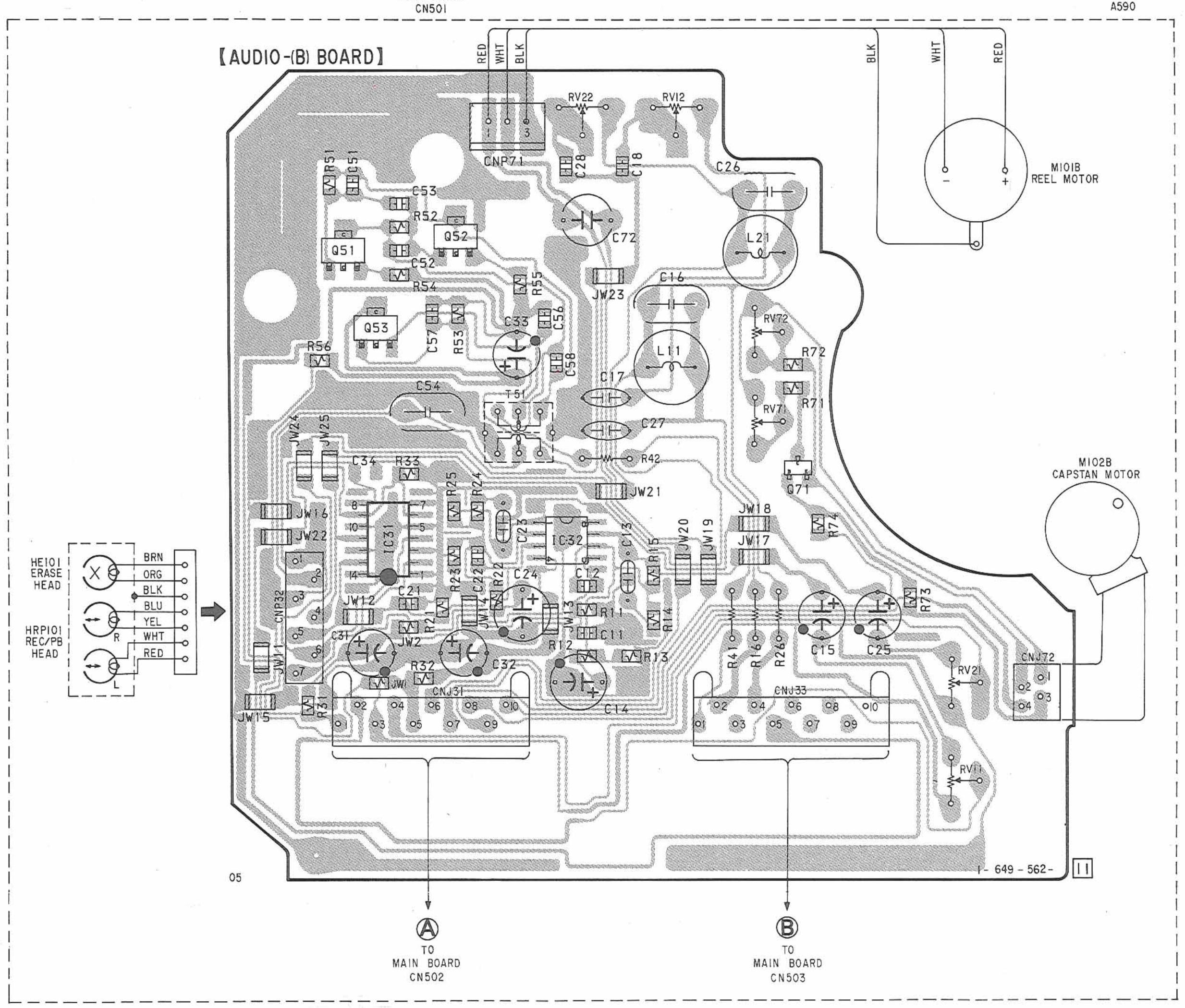
NOTE:

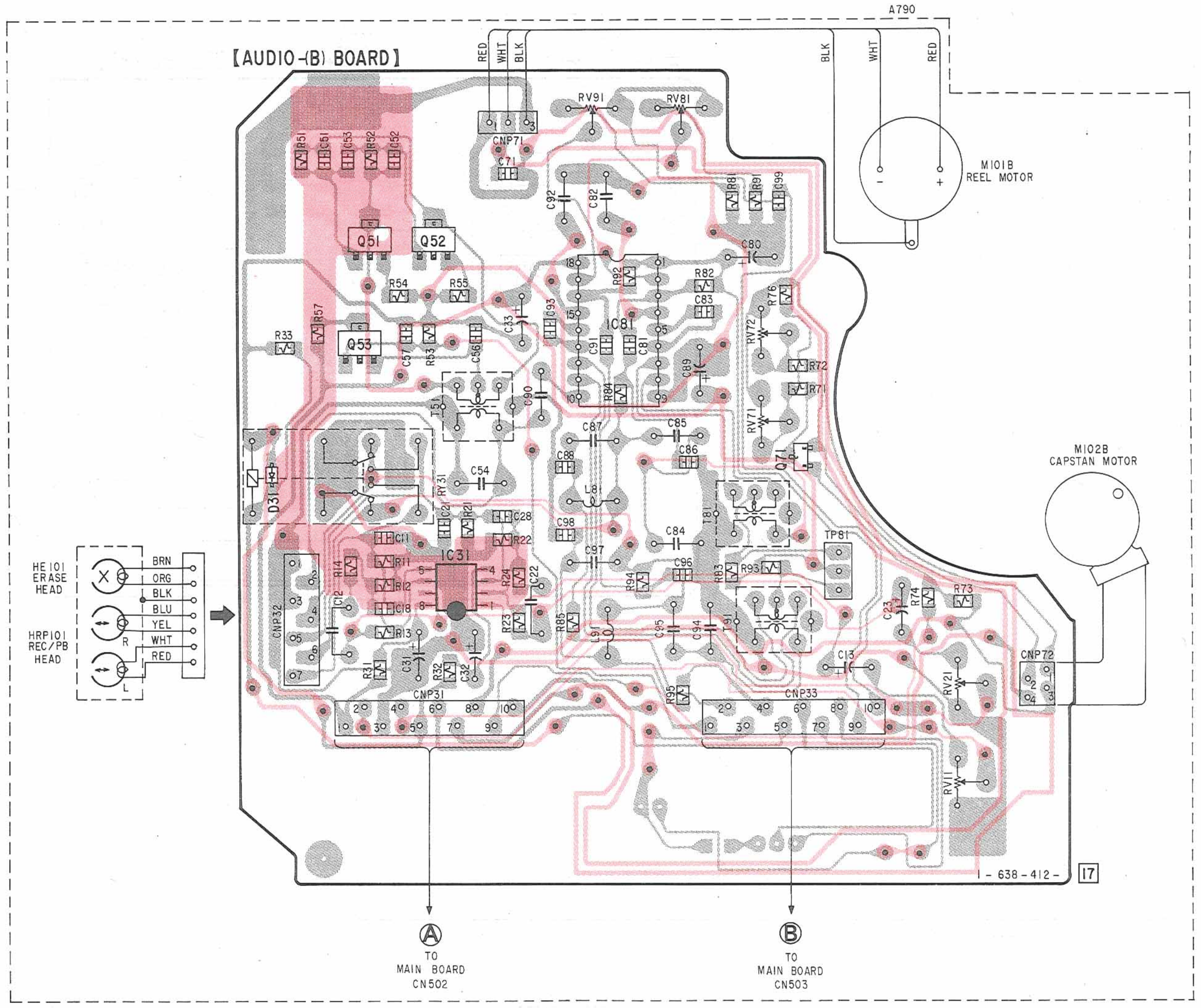
- -XX and -X
may have s
one.

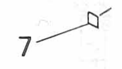
- Color Ind
Example:
KNOB, BA

- Abbreviatio
AE : AEI
EE : East
AU : Aus

(1) CASE


A590
[AUDIO-(B) BOARD]
RED
WHT
BLK
CNP71
RV22
RV12
C28
C18
C26
R51
C51
C53
R52
Q52
Q51
C52
R54
C72
L21
R55
C16
JW23
Q53
C57
R53
C33
C56
R56
L11
C58
C54
C17
T51
C27
R42
RV72
R72
RV71
R71
Q71
JW24
JW25
C34
R33
R25
R24
JW21
JW16
JW22
IC31
C23
IC32
C24
C13
R15
JW20
JW19
JW18
JW17
R74
C12
C21
C22
JW12
JW2
JW14
JW13
R11
C11
R14
R12
R13
C31
R32
C32
C14
C15
C25
R73
R41
R16
R26
CNP32
JW1
HE101
ERASE
HEAD
HRP101
REC/PB
HEAD
BRN
ORG
BLK
BLU
YEL
WHT
RED
JW15
R31
CNJ31
CNJ33
CNJ72
RV21
RV11
M101B
REEL MOTOR
M102B
CAPSTAN MOTOR
05
1-649-562-
11
A
TO
MAIN BOARD
CN502
B
TO
MAIN BOARD
CN503

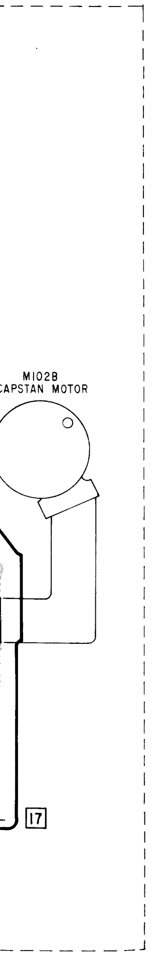

A790
[AUDIO-(B) BOARD]
RED
WHT
BLK
CNP71
RV91
RV81
C71
R51
C51
C53
R52
C52
C92
C82
R81
R91
C99
Q51
Q52
R54
R55
C80
R82
C83
R76
R57
R33
Q53
C57
R53
C56
C93
IC81
C81
RV72
R72
R71
RV71
Q71
T51
C90
C87
C85
C86
C88
D31
C54
RV31
C28
C98
C84
TP81
C11
R22
C12
C18
R14
R11
IC31
C22
R24
R23
C95
C94
R93
R83
R73
R74
R13
C31
R31
R32
C32
C13
C23
CNP32
CNJ31
CNJ33
CNP72
RV21
RV11
HE101
ERASE
HEAD
HRP101
REC/PB
HEAD
BRN
ORG
BLK
BLU
YEL
WHT
RED
M101B
REEL MOTOR
M102B
CAPSTAN MOTOR
1-638-412-
17
A
TO
MAIN BOARD
CN502
B
TO
MAIN BOARD
CN503



Ref. No.
1
2
* 3
* 4
* 4
* 4
* 4

uctor

lo.	Location
	J-10
A)	D-4
B A790)	J-11
B A590)	J-3
	J-4
	I-12
	C-13
	F-13
	H-11
	H-11
	H-11
)	D-5
A790)	I-14
A590)	J-6


M102B
CAPSTAN MOTOR
17

SECTION 5
EXPLODED VIEWS

NOTE:

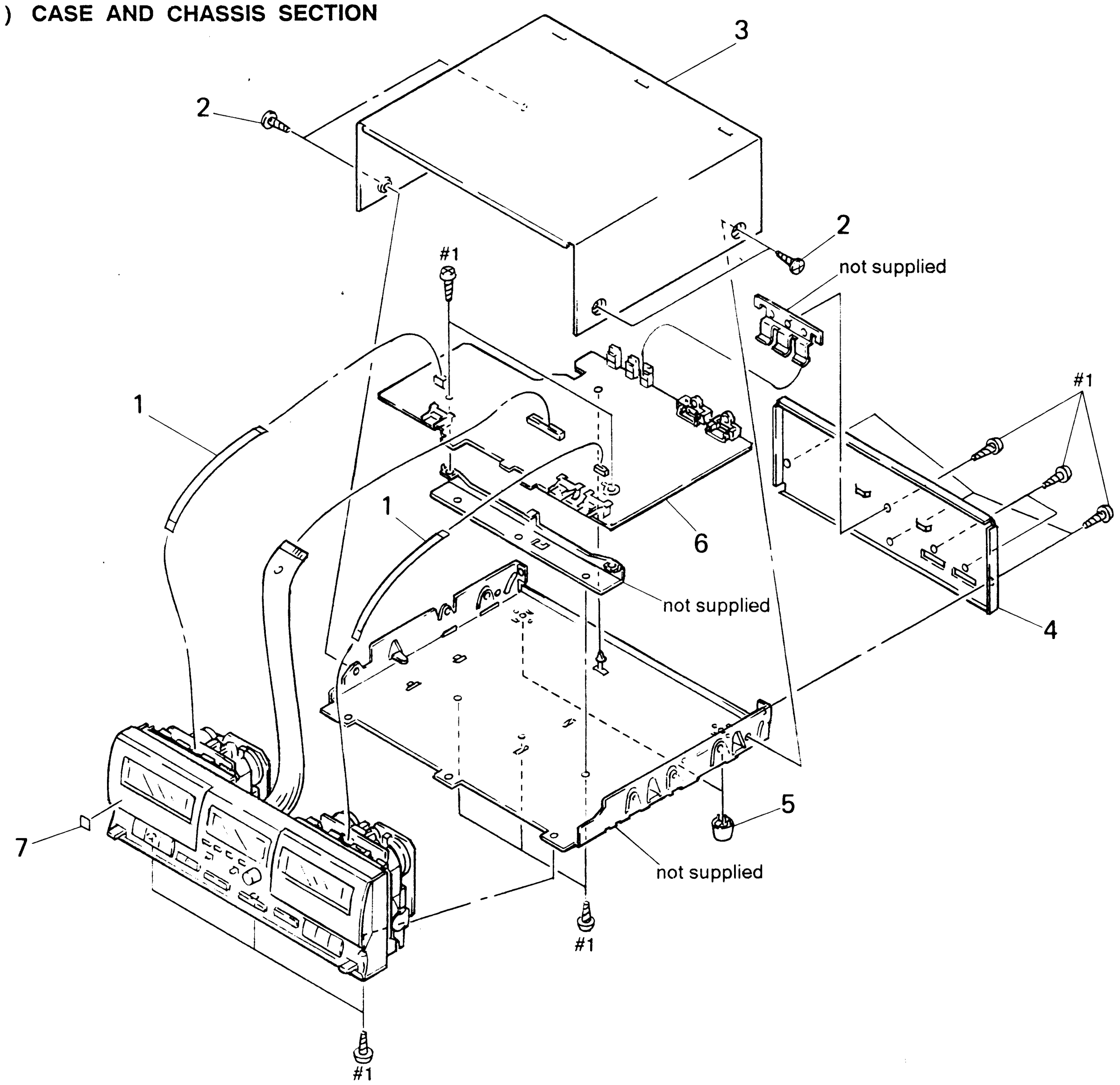
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviations

AE	: AEP Model	EA	: Saudi Arabia Model	SP	: Singapore Model
EE	: East European Model	MX	: Mexican Model	IT	: Italian Model
AU	: Australian Model	MY	: Malaysia Model	G	: German Model

- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

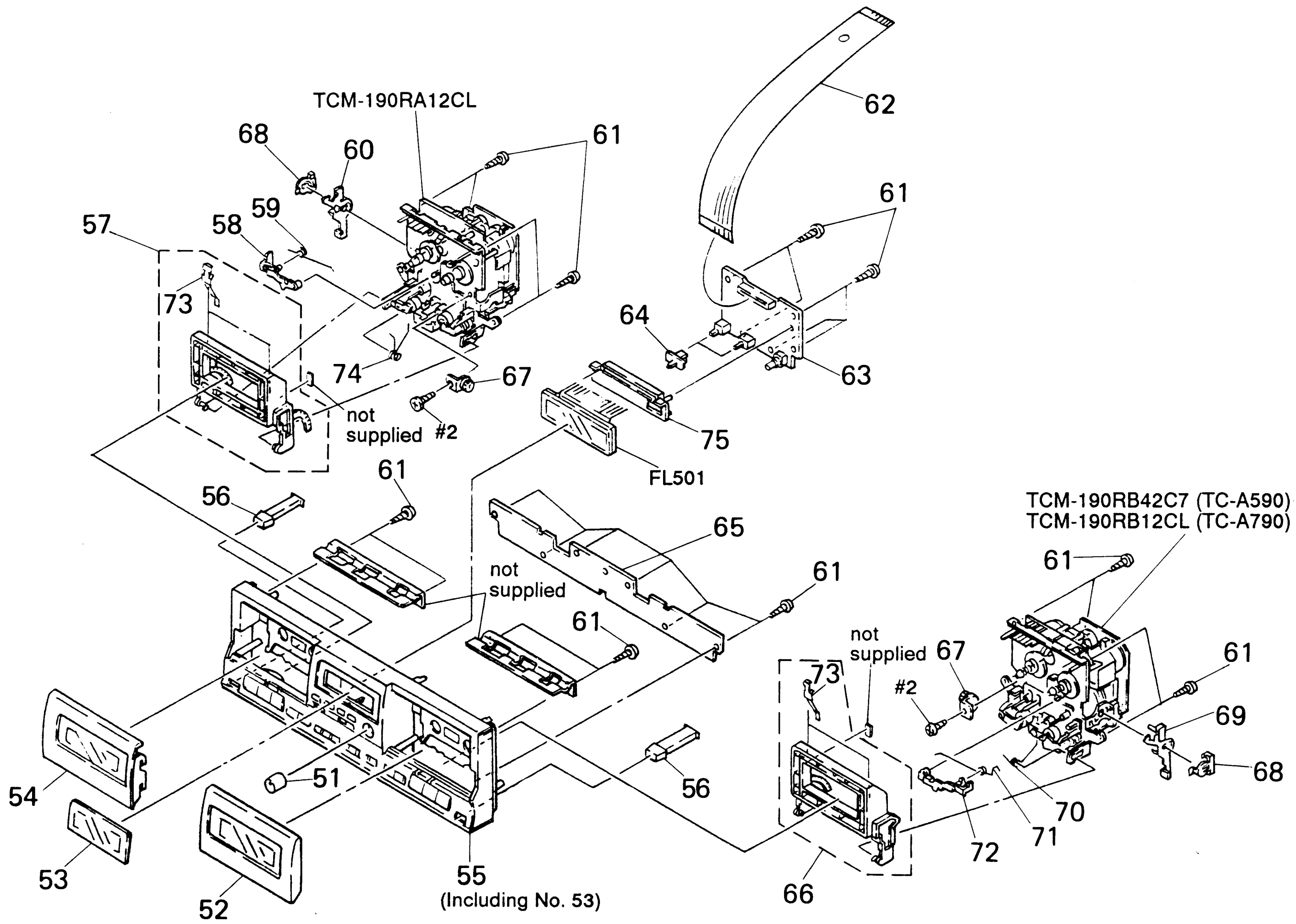
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) CASE AND CHASSIS SECTION


3
2
2
#1
not supplied
#1
1
1
6
not supplied
4
5
not supplied
7
#1
#1

Ref. No.	Part No.	Description	Remark
1	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
2	3-363-099-01	SCREW (CASE 3 TP2)	
∗ 3	4-939-803-71	CASE	
∗ 4	3-911-036-01	PANEL, BACK (A590:AE, EE, E, IT, AU, EA, MX, MY, PX, SP, CIS)	
∗ 4	3-911-036-11	PANEL, BACK (A590:G)	
∗ 4	3-911-036-21	PANEL, BACK (A790:AE, E, IT, AU, EA, MX, MY, SP, CIS)	
∗ 4	3-911-036-31	PANEL, BACK (A790:G)	
5	4-931-169-01	FOOT	
∗ 6	A-2007-188-A	MAIN BOARD, COMPLETE (A590:AE, EE, E, AU, EA, MX, MY, PX, SP, CIS)	
∗ 6	A-2007-190-A	MAIN BOARD, COMPLETE (A590:G, IT)	
∗ 6	A-2007-217-A	MAIN BOARD, COMPLETE (A790:AE, E, AU, EA, MX, MY, SP, CIS)	
∗ 6	A-2007-220-A	MAIN BOARD, COMPLETE (A790:G, IT)	
7	3-703-710-41	STICKER, SONY SYMBOL (12)	

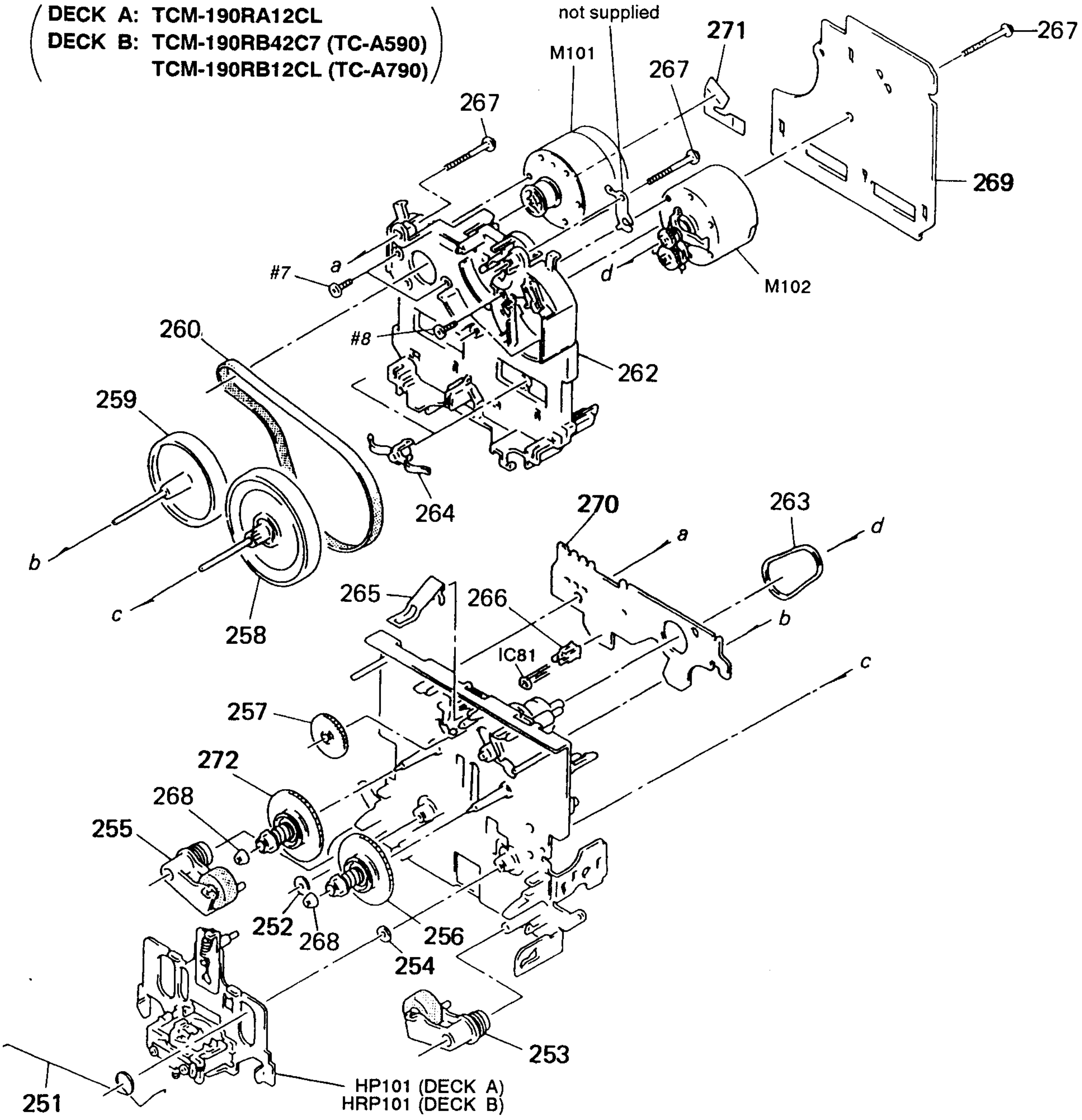
(2) FRONT PANEL ASSEMBLY SECTION


TCM-190RA12CL
68
60
61
62
61
57
58
59
73
64
74
67
63
not supplied #2
75
FL501
61
56
65
TCM-190RB42C7 (TC-A590)
TCM-190RB12CL (TC-A790)
61
not supplied
61
61
not supplied 67
73
#2
61
69
68
54
51
56
70
71
72
53
52
55
(Including No. 53)
66

Ref. No.	Part No.	Description	Remark
51	4-950-651-21	KNOB (DIA. 16), ROUND	
52	X-3367-972-1	LID (B) ASSY, CASSETTE (A590)	
52	X-3368-090-1	LID (B) ASSY, CASSETTE (A790)	
53	3-911-033-02	WINDOW (PANEL)	
54	X-3367-971-1	LID (A) ASSY, CASSETTE	
55	X-3367-970-2	PANEL ASSY, FRONT (A590)	
55	X-3368-089-1	PANEL ASSY, FRONT (A790)	
56	3-911-029-01	BUTTON (EJECT)	
57	A-4325-163-A	HOLDER (L) ASSY, CASSETTE	
58	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
59	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
∗ 60	3-363-638-01	LEVER (LOCK LEVER L)	
61	4-951-620-01	SCREW (2.6X8), +BVTP	
62	1-765-079-11	WIRE (FLAT TYPE) (31 CORE)	
∗ 63	A-2007-191-A	FL BOARD, COMPLETE (A590)	
64	3-911-034-01	KNOB (SLIDE)	
∗ 65	A-2007-192-A	KEY SW BOARD, COMPLETE (A590)	
66	A-4325-164-A	HOLDER (R) ASSY, CASSETTE	
67	3-354-963-01	DAMPER	
68	3-354-957-01	JOINT (LOCK LEVER)	
∗ 69	3-363-639-01	LEVER (LOCK LEVER R)	
70	3-354-960-01	SPRING (LOADING R), TORSION	
71	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
72	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
73	3-308-823-11	DETENT, CASSETTE	
74	3-354-959-01	SPRING (LOADING L), TORSION	
75	3-911-035-01	HOLDER (FL TUBE)	
FL501	1-517-277-11	INDICATOR TUBE, FLUORESCENT	

(3) MECHANISM SECTION-1

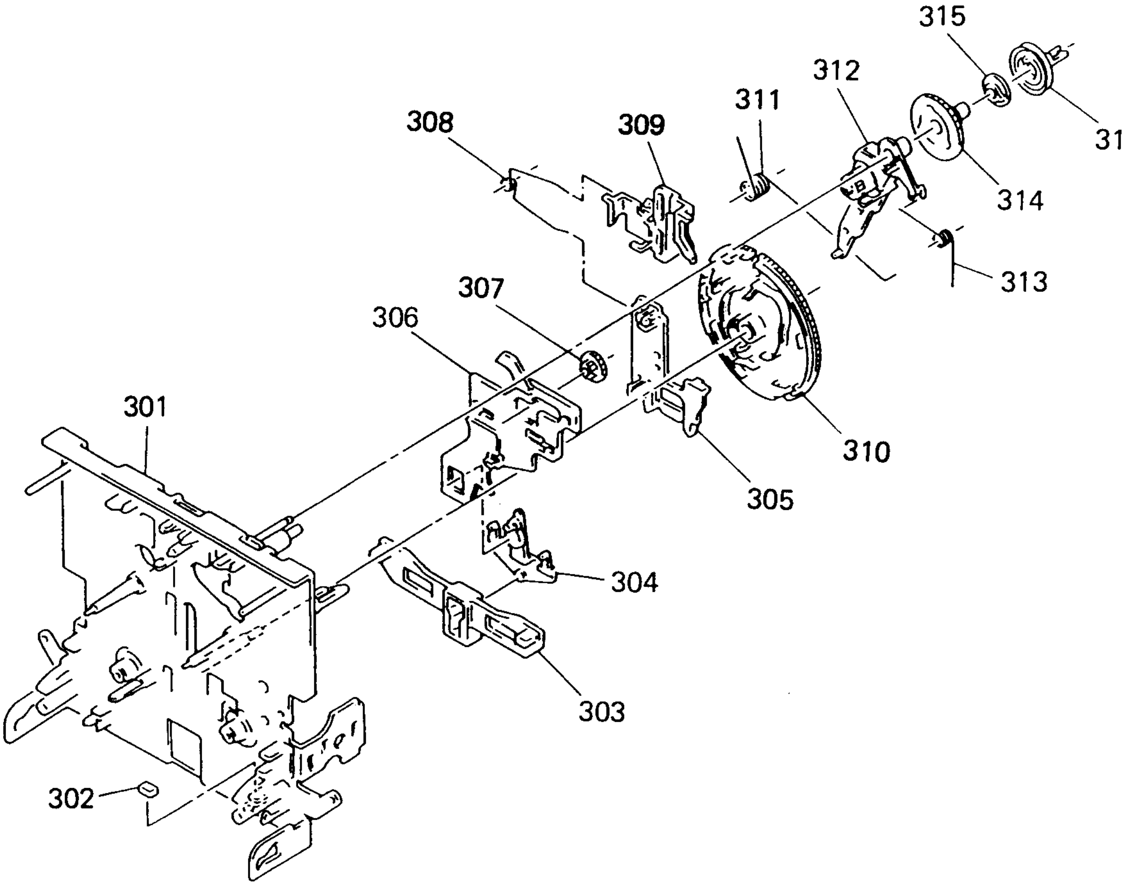
(DECK A: TCM-190RA12CL
DECK B: TCM-190RB42C7 (TC-A590)
TCM-190RB12CL (TC-A790))


not supplied
M101
271
267
267
267
269
M102
a
d
#7
#8
260
262
259
264
b
c
258
270
a
263
d
b
265
266
IC81
c
257
272
268
255
252
268
256
254
253
251
HP101 (DECK A)
HRP101 (DECK B)

Ref. No.	Part No.	Description	Remark
251	3-359-455-01	SPRING, TORSION	
252	3-356-714-01	WASHER	
253	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
254	3-356-713-01	WASHER	
255	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
256	X-3359-404-1	TABLE (A) ASSY, REEL	
257	3-359-424-01	GEAR (REV GEAR)	
258	X-3359-406-1	FLYWHEEL (FWD) ASSY	
259	X-3359-410-1	FLYWHEEL (REV) ASSY	
260	3-359-417-01	BELT (FLAT), CAPSTAN	
* 262	3-359-436-01	BASE (THRUST RETAINER), FITTING	
263	3-359-466-01	BELT (FR), SQUARE	
264	3-575-321-00	RETAINER, THRUST, CAPSTAN	
265	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	
266	3-343-419-01	HOLDER (S SENSOR A)	
267	3-359-414-01	SCREW (+PTPWH 2X23)	
268	3-362-308-01	CAP (REEL)	
* 269	A-2006-609-A	AUDIO BOARD, COMPLETE (DECK A)	
* 269	A-2006-828-A	AUDIO BOARD, (RB12CJ) COMPLETE (A790:DECK B)	
* 269	A-2007-102-A	AUDIO BOARD, (RB42A) COMPLETE (A590:DECK B)	
* 270	1-634-841-14	SW (A) BOARD	
271	1-638-983-11	MOTOR FLEXIBLE BOARD	
272	X-3362-078-1	TABLE ASSY, REEL	
HP101	A-2003-838-F	DECK ASSY, HEAD (DECK A)	
HRP101	A-2004-190-F	DECK ASSY, HEAD (DECK B)	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
M101	X-3365-377-1	MOTOR ASSY (CAPSTAN)	
M102	X-3363-501-1	MOTOR ASSY (REEL)	

(4) MECHANISM SECTION-2

(DECK A: TCM-190RA12CL
DECK B: TCM-190RB42C7 (TC-A590)
TCM-190RB12CL (TC-A790))



Ref. No.	Part No.	Description	Remark
301	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
301	X-3363-790-1	CHASSIS ASSY, MECHANICAL (A590:DECK B)	
302	3-359-469-01	SPACER	
* 303	3-359-425-01	SLIDER (REVERSE SLIDER)	
304	3-359-426-01	LEVER (REVERSE LEVER)	
* 305	3-359-427-01	SLIDER (LEVERSE SLIDER)	
* 306	3-359-415-01	SLIDER (TRIGGER SLIDER)	
307	3-359-448-01	GEAR (TRIGGER)	
308	3-359-454-01	SPRING, TORSION	

Ref. No.	Part No.	Description	Remark
309	3-359-429-01	SLIDER (BRAKE PLATE)	
310	3-359-420-01	GEAR (CAM GEAR)	
311	3-359-456-01	SPRING(TRIGGER SPRING), TORSION	
312	X-3359-405-1	LEVER (FR ARM) ASSY	
313	3-359-453-01	SPRING (FR ARM), TORSION	
314	3-359-419-01	GEAR (FR GEAR)	
315	3-359-421-01	CLUTCH (REEL DISK)	
316	3-359-418-01	PULLEY (FR PULLEY)	

SECTION 6
ELECTRICAL PARTS LIST

AUDIO (A)　AUDIO (B) (A790)

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA ..: μA..　uPA..: μPA..
  uPB..: μPB..　uPC..: μPC..　uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH
- Abbreviation
  AE: AEP　EE: East European　AU: Australian　EA: Saudi Aradia　MX: Mexican
  MY: Malaysia　SP: Singapore　IT: Italian　G: German

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	A-2006-609-A	AUDIO (A) BOARD, COMPLETE (DECK A)	
		**********************************	
		< CAPACITOR >	
C11	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
C12	1-136-157-00	FILM 0.022uF 5%	50V
C13	1-124-234-00	ELECT 22uF 20%	16V
C18	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C21	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
C22	1-136-157-00	FILM 0.022uF 5%	50V
C23	1-124-234-00	ELECT 22uF 20%	16V
C28	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C31	1-124-234-00	ELECT 22uF 20%	16V
C32	1-124-234-00	ELECT 22uF 20%	16V
C72	1-124-499-11	ELECT, NONPOLAR 1uF 20%	50V
		< CONNECTOR >	
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD	
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P	
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P	
		< IC >	
IC31	8-759-106-02	IC uPC4570G2	
		< JUMPER RESISTOR >	
JW1	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW51	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW52	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW53	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW54	1-216-296-91	METAL GLAZE 0 5% 1/8W	
		< TRANSISTOR >	
Q71	8-729-602-36	TRANSISTOR 2SA1602	
		< RESISTOR >	
R11	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R12	1-216-025-00	METAL CHIP 100 5% 1/10W	
R13	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
R14	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R22	1-216-025-00	METAL CHIP 100 5% 1/10W	
R23	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
R24	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R31	1-216-033-00	METAL CHIP 220 5% 1/10W	
R32	1-216-033-00	METAL CHIP 220 5% 1/10W	
R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R72	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R73	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R74	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		< VARIABLE RESISTOR >	
RV11	1-241-761-11	RES, ADJ, CARBON 1K	
RV21	1-241-761-11	RES, ADJ, CARBON 1K	
RV71	1-241-630-11	RES, ADJ, CARBON 10K	
RV72	1-241-630-11	RES, ADJ, CARBON 10K	
**			
*	A-2006-828-A	AUDIO BOARD (B) COMPLTE (A790:DECK B)	
		************************************	
		< CAPACITOR >	
C11	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
C12	1-136-157-00	FILM 0.022uF 5% 50V	
C13	1-124-234-00	ELECT 22uF 20% 16V	
C18	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C21	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
C22	1-136-157-00	FILM 0.022uF 5% 50V	
C23	1-124-234-00	ELECT 22uF 20% 16V	
C28	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C31	1-124-234-00	ELECT 22uF 20% 16V	
C32	1-124-234-00	ELECT 22uF 20% 16V	
C33	1-124-234-00	ELECT 22uF 20% 16V	
C51	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C52	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C53	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C54	1-136-601-11	FILM 0.01uF 5% 630V	

AUDIO (B) (A790)

Ref. No.	Part No.	Description			Remark
C56	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C57	1-164-346-11	CERAMIC CHIP	1uF		16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
C80	1-124-234-00	ELECT	22uF	20%	16V
C81	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C82	1-136-157-00	FILM	0.022uF	5%	50V
C83	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C84	1-136-478-11	FILM	470PF	5%	630V
C85	1-136-433-11	FILM	100PF	5%	630V
C86	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C87	1-136-273-91	FILM	75PF	5%	630V
C88	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C89	1-124-234-00	ELECT	22uF	20%	16V
C90	1-107-584-11	CERAMIC	4PF	0.25PF	500V
C91	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C92	1-136-157-00	FILM	0.022uF	5%	50V
C93	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C94	1-136-478-11	FILM	470PF	5%	630V
C95	1-136-433-11	FILM	100PF	5%	630V
C96	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C97	1-136-273-91	FILM	75PF	5%	630V
C98	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C99	1-164-005-11	CERAMIC CHIP	0.47uF		25V

< CONNECTOR >

* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P
CNP72	1-764-902-11	CONNECTOR, FFC/FPC 4P
* CNP75	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P

< DIODE >

D31	8-719-016-74	DIODE	1SS352

< IC >

IC31	8-759-106-02	IC	uPC4570G2
IC81	8-759-106-56	IC	uPC1297CA

< COIL >

L81	1-410-780-11	INDUCTOR	27mH
L91	1-410-780-11	INDUCTOR	27mH

< TRANSISTOR >

Q51	8-729-808-01	TRANSISTOR	2SD1622-S
Q52	8-729-808-01	TRANSISTOR	2SD1622-S
Q53	8-729-808-01	TRANSISTOR	2SD1622-S
Q71	8-729-216-22	TRANSISTOR	2SA1162-G

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R33	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W
R52	1-216-097-00	METAL CHIP	100K	5%	1/10W
R53	1-216-073-00	METAL CHIP	10K	5%	1/10W
R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R57	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
R76	1-216-090-00	METAL CHIP	51K	5%	1/10W
R81	1-216-073-00	METAL CHIP	10K	5%	1/10W
R82	1-216-085-00	METAL CHIP	33K	5%	1/10W
R83	1-216-001-00	METAL CHIP	10	5%	1/10W
R84	1-216-101-00	METAL CHIP	150K	5%	1/10W
R85	1-216-075-00	METAL CHIP	12K	5%	1/10W
R91	1-216-073-00	METAL CHIP	10K	5%	1/10W
R92	1-216-085-00	METAL CHIP	33K	5%	1/10W
R93	1-216-001-00	METAL CHIP	10	5%	1/10W
R94	1-216-101-00	METAL CHIP	150K	5%	1/10W
R95	1-216-075-00	METAL CHIP	12K	5%	1/10W

< VARIABLE RESISTOR >

RV11	1-241-761-11	RES, ADJ, CARBON 1K
RV21	1-241-761-11	RES, ADJ, CARBON 1K
RV71	1-241-630-11	RES, ADJ, CARBON 10K
RV72	1-241-630-11	RES, ADJ, CARBON 10K
RV81	1-241-786-11	RES, ADJ, CARBON 22K
RV91	1-241-786-11	RES, ADJ, CARBON 22K

< RELAY >

RY31	1-515-803-11	RELAY

< TRANSFORMER >

T51	1-406-417-11	COIL, BIAS OSCILLATION
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR

Ref. No.	Part No.	Description	Remark
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	

< TEST PIN >

Ref. No.	Part No.	Description	Remark
* TP81	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	

****

* A-2007-102-A AUDIO (B) BOARD COMPLETE (A590:DECK B)

****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C12	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C13	1-136-153-00	FILM 0.01uF 5% 50V	
C14	1-126-177-11	ELECT 100uF 20% 10V	
C15	1-124-234-00	ELECT 22uF 20% 16V	
C16	1-136-434-11	FILM 120PF 5% 630V	
C17	1-164-080-11	CERAMIC 390PF 10% 50V	
C18	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C22	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C23	1-136-153-00	FILM 0.01uF 5% 50V	
C24	1-126-177-11	ELECT 100uF 20% 10V	
C25	1-124-234-00	ELECT 22uF 20% 16V	
C26	1-136-434-11	FILM 120PF 5% 630V	
C27	1-164-080-11	CERAMIC 390PF 10% 50V	
C28	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C51	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C52	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C53	1-163-023-00	CERAMIC CHIP 0.015uF 5% 50V	
C58	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C72	1-124-499-11	ELECT, NONPOLAR 1uF 20% 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD	
* CNJ33	1-580-782-11	CONNECTOR, BOARD TO BOARD	
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P	

< IC >

Ref. No.	Part No.	Description	Remark
IC31	8-759-249-21	IC uPC1330AGR	
IC32	8-759-106-02	IC uPC4570G2	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JW1	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW2	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW11	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW12	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW13	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW14	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW15	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW16	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW17	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW18	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW19	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW20	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW21	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW22	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW23	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW24	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW25	1-216-296-91	METAL GLAZE 0 5% 1/8W	

< COIL >

Ref. No.	Part No.	Description	Remark
L11	1-410-780-11	INDUCTOR 27mH	
L21	1-410-780-11	INDUCTOR 27mH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q71	8-729-602-36	TRANSISTOR 2SA1602	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R12	1-216-033-00	METAL CHIP 220 5% 1/10W	
R13	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R14	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R15	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R16	1-249-430-11	CARBON 12K 5% 1/4W	
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R22	1-216-033-00	METAL CHIP 220 5% 1/10W	
R23	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R24	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R25	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R26	1-249-430-11	CARBON 12K 5% 1/4W	
R33	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R41	1-249-393-11	CARBON 10 5% 1/4W	F
R42	1-249-393-11	CARBON 10 5% 1/4W	F
R51	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R52	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R56	1-216-298-00	METAL CHIP 2.2 5% 1/10W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV12	1-238-551-11	RES, ADJ, CARBON 220K	
RV22	1-238-551-11	RES, ADJ, CARBON 220K	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T51	1-423-980-11	TRANSFORMER, BIAS OSCILLATION	

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FL KEY, SW MAIN

Ref. No.	Part No.	Description	Remark
*	1-651-149-11	FL BOARD	
		********	
	3-911-035-01	HOLDER (FL TUBE)	
*	4-955-901-01	CUSHION (FL)	
		< CAPACITOR >	
C501	1-161-494-00	CERAMIC 0.022uF	25V
C502	1-161-494-00	CERAMIC 0.022uF	25V
		< CONNECTOR >	
* CN507	1-568-845-11	SOCKET, CONNECTOR 31P	
		< FILTER >	
FL501	1-517-277-11	INDICATOR TUBE, FLUORESCENT	
		< RESISTOR >	
R500	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R512	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R513	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R514	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R515	1-249-424-11	CARBON 3.9K 5% 1/4W	F
R519	1-249-424-11	CARBON 3.9K 5% 1/4W	F
R520	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R521	1-249-441-11	CARBON 100K 5% 1/4W	
		< VARIABLE RESISTOR >	
RV501	1-223-673-11	RES, VAR, CARBON 10K (REC VOL)	
		< SWITCH >	
S514	1-554-303-21	SWITCH, TACTILE (A(COUNTER RESET))	
S515	1-554-303-21	SWITCH, TACTILE (ARL)	
S516	1-554-303-21	SWITCH, TACTILE (FADER)	
S517	1-571-452-11	SWITCH, SLIDE (DOLBY)	
S521	1-554-303-21	SWITCH, TACTILE (B(COUNTER RESET))	
S522	1-571-452-11	SWITCH, SLIDE (DIRECTION MODE)	

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Ref. No.	Part No.	Description	Remark
*	1-651-150-11	KEY.SW BOARD	
		************	
		< RESISTOR >	
R501	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R502	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R503	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R504	1-249-424-11	CARBON 3.9K 5% 1/4W	F
R505	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R506	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R507	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R508	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R509	1-249-424-11	CARBON 3.9K 5% 1/4W	F
R510	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R511	1-249-431-11	CARBON 15K 5% 1/4W	
R516	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R517	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R518	1-249-422-11	CARBON 2.7K 5% 1/4W	F
		< SWITCH >	
S501	1-554-303-21	SWITCH, TACTILE (■)	
S502	1-554-303-21	SWITCH, TACTILE (▷)	
S503	1-554-303-21	SWITCH, TACTILE (◁)	
S504	1-554-303-21	SWITCH, TACTILE (◀◀(AMS))	
S505	1-554-303-21	SWITCH, TACTILE (▶▶(AMS))	
S506	1-554-303-21	SWITCH, TACTILE (● REC)	
S507	1-554-303-21	SWITCH, TACTILE (■)	
S508	1-554-303-21	SWITCH, TACTILE (❚❚ PAUSE)	
S509	1-554-303-21	SWITCH, TACTILE (▷)	
S510	1-554-303-21	SWITCH, TACTILE (◁)	
S511	1-554-303-21	SWITCH, TACTILE (○ REC MUTE)	
S512	1-554-303-21	SWITCH, TACTILE (◀◀(AMS))	
S513	1-554-303-21	SWITCH, TACTILE (▶▶(AMS))	
S518	1-554-303-21	SWITCH, TACTILE (NORMAL SPEED)	
S519	1-554-303-21	SWITCH, TACTILE (HIGH SPEED)	
S520	1-554-303-21	SWITCH, TACTILE (CD SYNCHRO)	

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Ref. No.	Part No.	Description	Remark
*	A-2007-188-A	MAIN BOARD, COMPLETE (A590:AE, EE, E, AU, EA, MX, MY, PX, SP, CIS)	
		*******************	
*	A-2007-190-A	MAIN BOARD, COMPLETE (A590:G, IT)	
		*******************	
*	A-2007-217-A	MAIN BOARD, COMPLETE (A790:AE, E, AU, EA, MX, MY, SP, CIS)	
		*******************	
*	A-2007-220-A	MAIN BOARD, COMPLETE (A790:G, IT)	
		*******************	
*	4-942-204-01	PLATE, GROUND	
		< CAPACITOR >	
C1	1-164-159-11	CERAMIC 0.1uF	50V
C2	1-164-159-11	CERAMIC 0.1uF	50V
C3	1-164-159-11	CERAMIC 0.1uF	50V
C4	1-164-159-11	CERAMIC 0.1uF	50V
C15	1-164-159-11	CERAMIC 0.1uF	50V
C103	1-164-159-11	CERAMIC 0.1uF	50V

Ref. No.	Part No.	Description			Remark
C104	1-126-059-11	ELECT	10uF	20%	50V
C105	1-162-294-31	CERAMIC	0.001uF	10%	50V
C106	1-130-475-00	MYLAR	0.0022uF	5%	50V
C107	1-130-475-00	MYLAR	0.0022uF	5%	50V
C108	1-136-174-00	FILM	0.56uF	5%	50V
C109	1-136-171-00	FILM	0.33uF	5%	50V
C110	1-126-059-11	ELECT	10uF	20%	50V
C111	1-126-059-11	ELECT	10uF	20%	50V
C112	1-124-994-11	ELECT	100uF	20%	10V
C113	1-126-161-11	ELECT	2.2uF	20%	50V
C114	1-162-282-31	CERAMIC	100PF	10%	50V
C115	1-126-161-11	ELECT	2.2uF	20%	50V
C116	1-126-163-11	ELECT	4.7uF	20%	50V
C117	1-126-012-11	ELECT	470uF	20%	16V
C119	1-124-360-00	ELECT	1000uF	20%	16V
C157	1-126-012-11	ELECT	470uF	20%	16V
C158	1-126-300-11	ELECT	0.47uF	20%	50V
C169	1-126-300-11	ELECT	0.47uF	20%	50V
C203	1-164-159-11	CERAMIC	0.1uF		50V
C204	1-126-059-11	ELECT	10uF	20%	50V
C205	1-162-294-31	CERAMIC	0.001uF	10%	50V
C206	1-130-475-00	MYLAR	0.0022uF	5%	50V
C207	1-130-475-00	MYLAR	0.0022uF	5%	50V
C208	1-136-174-00	FILM	0.56uF	5%	50V
C209	1-136-171-00	FILM	0.33uF	5%	50V
C210	1-126-059-11	ELECT	10uF	20%	50V
C211	1-126-059-11	ELECT	10uF	20%	50V
C212	1-124-994-11	ELECT	100uF	20%	10V
C213	1-126-161-11	ELECT	2.2uF	20%	50V
C214	1-162-282-31	CERAMIC	100PF	10%	50V
C215	1-126-161-11	ELECT	2.2uF	20%	50V
C216	1-126-163-11	ELECT	4.7uF	20%	50V
C302	1-162-292-31	CERAMIC	680PF	10%	50V
C304	1-162-293-31	CERAMIC	820PF	10%	50V
C305	1-126-161-11	ELECT	2.2uF	20%	50V
C306	1-126-301-11	ELECT	1uF	20%	50V
C307	1-126-161-11	ELECT	2.2uF	20%	50V
C308	1-126-300-11	ELECT	0.47uF	20%	50V
C309	1-126-163-11	ELECT	4.7uF	20%	50V
C310	1-126-163-11	ELECT	4.7uF	20%	50V
C311	1-124-994-11	ELECT	100uF	20%	10V
C312	1-126-162-11	ELECT	3.3uF	20%	50V
C313	1-126-300-11	ELECT	0.47uF	20%	50V
C314	1-164-159-11	CERAMIC	0.1uF		50V
C315	1-126-161-11	ELECT	2.2uF	20%	50V
C316	1-126-301-11	ELECT	1uF	20%	50V
C352	1-162-292-31	CERAMIC	680PF	10%	50V
C354	1-162-293-31	CERAMIC	820PF	10%	50V
C355	1-126-161-11	ELECT	2.2uF	20%	50V
C356	1-126-301-11	ELECT	1uF	20%	50V
C357	1-126-161-11	ELECT	2.2uF	20%	50V
C358	1-126-300-11	ELECT	0.47uF	20%	50V
C359	1-126-163-11	ELECT	4.7uF	20%	50V
C360	1-126-163-11	ELECT	4.7uF	20%	50V
C361	1-124-994-11	ELECT	100uF	20%	10V
C362	1-126-162-11	ELECT	3.3uF	20%	50V
C363	1-126-059-11	ELECT	10uF	20%	50V
C364	1-126-163-11	ELECT	4.7uF	20%	50V
C366	1-126-301-11	ELECT	1uF	20%	50V
C401	1-126-161-11	ELECT	2.2uF	20%	50V
C402	1-126-161-11	ELECT	2.2uF	20%	50V
C403	1-164-159-11	CERAMIC	0.1uF		50V
C404	1-126-163-11	ELECT	4.7uF	20%	50V
C405	1-136-167-00	FILM	0.15uF	5%	50V
C406	1-136-161-00	FILM	0.047uF	5%	50V
C407	1-124-471-00	ELECT	1000uF	20%	6.3V
C451	1-126-161-11	ELECT	2.2uF	20%	50V
C452	1-126-161-11	ELECT	2.2uF	20%	50V
C454	1-126-163-11	ELECT	4.7uF	20%	50V
C455	1-164-159-11	CERAMIC	0.1uF		50V
C456	1-164-159-11	CERAMIC	0.1uF		50V
C701	1-126-937-11	ELECT	4700uF	20%	16V
C702	1-126-937-11	ELECT	4700uF	20%	16V
C703	1-126-101-11	ELECT	100uF	20%	16V
C704	1-124-473-11	ELECT	1000uF	20%	10V
C705	1-124-473-11	ELECT	1000uF	20%	10V
C707	1-124-472-11	ELECT	470uF	20%	10V
C708	1-126-161-11	ELECT	2.2uF	20%	50V
C709	1-126-301-11	ELECT	1uF	20%	50V
C710	1-126-301-11	ELECT	1uF	20%	50V
C712	1-124-122-11	ELECT	100uF	20%	50V
C713	1-126-161-11	ELECT	2.2uF	20%	50V
C714	1-126-161-11	ELECT	2.2uF	20%	50V
C720	1-162-290-31	CERAMIC	470PF	10%	50V
C801	1-126-300-11	ELECT	0.47uF	20%	50V
C802	1-164-159-11	CERAMIC	0.1uF		50V
C803	1-161-494-00	CERAMIC	0.022uF		25V
C804	1-161-494-00	CERAMIC	0.022uF		25V
C805	1-124-994-11	ELECT	100uF	20%	10V
C806	1-126-059-11	ELECT	10uF	20%	50V
C807	1-124-994-11	ELECT	100uF	20%	10V
C808	1-126-301-11	ELECT	1uF	20%	50V
C809	1-126-301-11	ELECT	1uF	20%	50V
C810	1-164-159-11	CERAMIC	0.1uF		50V
C811	1-164-159-11	CERAMIC	0.1uF		50V
C812	1-162-290-31	CERAMIC	470PF	10%	50V
C813	1-162-290-31	CERAMIC	470PF	10%	50V
C814	1-126-162-11	ELECT	3.3uF	20%	50V

MAIN

Ref. No.	Part No.	Description	Remark
C815	1-164-159-11	CERAMIC 0.1uF	50V
C816	1-161-494-00	CERAMIC 0.022uF	25V
C817	1-164-159-11	CERAMIC 0.1uF	50V
C818	1-161-494-00	CERAMIC 0.022uF	25V
C819	1-161-494-00	CERAMIC 0.022uF	25V
C820	1-161-494-00	CERAMIC 0.022uF	25V
C821	1-161-494-00	CERAMIC 0.022uF	25V
C822	1-161-494-00	CERAMIC 0.022uF	25V
C823	1-161-379-00	CERAMIC 0.01uF 20%	25V
		< CONNECTOR >	
* CN501	1-580-784-11	CONNECTOR, BOARD TO BOARD	
* CN502	1-580-784-11	CONNECTOR, BOARD TO BOARD	
* CN503	1-580-784-11	CONNECTOR, BOARD TO BOARD	
* CN504	1-566-858-41	SOCKET, CONNECTOR 11P	
* CN505	1-568-826-11	SOCKET, CONNECTOR 7P	
* CN506	1-568-826-11	SOCKET, CONNECTOR 7P	
* CN701	1-566-859-11	SOCKET, CONNECTOR 15P	
* CN801	1-568-954-11	PIN, CONNECTOR 5P	
* CN802	1-568-845-11	SOCKET, CONNECTOR 31P	
		< DIODE >	
D101	8-719-933-54	DIODE HZS9A2L	
D102	8-719-987-63	DIODE 1N4148M	
D301	8-719-933-33	DIODE HZS6A1L	
D302	8-719-933-33	DIODE HZS6A1L	
D303	8-719-987-63	DIODE 1N4148M	
D401	8-719-987-63	DIODE 1N4148M	
D701	8-719-200-77	DIODE 10E2N	
D702	8-719-200-77	DIODE 10E2N	
D703	8-719-200-77	DIODE 10E2N	
D704	8-719-200-77	DIODE 10E2N	
D705	8-719-200-77	DIODE 10E2N	
D706	8-719-200-77	DIODE 10E2N	
D707	8-719-933-33	DIODE HZS6A1L	
D708	8-719-933-33	DIODE HZS6A1L	
D709	8-719-000-78	DIODE UZL-7L2	
D710	8-719-933-54	DIODE HZS9A2L	
D711	8-719-933-54	DIODE HZS9A2L	
D712	8-719-987-63	DIODE 1N4148M	
D713	8-719-987-63	DIODE 1N4148M	
D714	8-719-933-33	DIODE HZS6A1L	
D802	8-719-987-63	DIODE 1N4148M	
D803	8-719-200-77	DIODE 10E2N	
D804	8-719-200-77	DIODE 10E2N	
D805	8-719-987-63	DIODE 1N4148M	
D806	8-719-987-63	DIODE 1N4148M	
D807	8-719-987-63	DIODE 1N4148M	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC301	8-759-635-26	IC M5283P	
IC302	8-752-059-54	IC CXA1332S	
IC303	8-752-058-57	IC CXA1599Q	
IC304	8-759-145-58	IC uPC4558C	
IC401	8-759-634-51	IC M5218AP	
IC402	8-759-140-53	IC uPD4053BC	
IC403	8-759-135-80	IC uPC358C	
IC701	8-759-145-58	IC uPC4558C	
IC801	8-759-254-18	IC M38172M4-082FP	
IC801	8-759-266-35	IC TA8242K (A790)	
IC802	8-759-165-82	IC PST600E-T	
IC803	8-759-266-35	IC TA8242K	
IC804	8-759-000-48	IC MC14052BCP	
		< COIL >	
L101	1-410-470-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q101	8-729-900-65	TRANSISTOR DTA144ES	
Q102	8-729-900-89	TRANSISTOR DTC144ES	
Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q301	8-729-900-89	TRANSISTOR DTC144ES	
Q305	8-729-821-04	TRANSISTOR 2SA1317-STU	
Q306	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q351	8-729-900-89	TRANSISTOR DTC144ES	
Q401	8-729-821-04	TRANSISTOR 2SA1317-STU	
Q402	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
Q403	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
⚠Q701	8-729-141-83	TRANSISTOR 2SB1094-LK	
⚠Q702	8-729-209-15	TRANSISTOR 2SD2012	
Q703	8-729-620-05	TRANSISTOR 2SC2603-EF	
⚠Q704	8-729-209-15	TRANSISTOR 2SD2012	
Q803	8-729-801-93	TRANSISTOR 2SD1387-B	
Q804	8-729-801-93	TRANSISTOR 2SD1387-B	
Q805	8-729-900-80	TRANSISTOR DTC114ES	
Q807	8-729-900-89	TRANSISTOR DTC144ES	
Q808	8-729-821-04	TRANSISTOR 2SA1317-STU	
Q809	8-729-900-89	TRANSISTOR DTC144ES	
Q810	8-729-900-89	TRANSISTOR DTC144ES	
Q811	8-729-900-89	TRANSISTOR DTC144ES	
Q812	8-729-900-89	TRANSISTOR DTC144ES	
		< RESISTOR >	
R107	1-249-420-11	CARBON 1.8K 5% 1/4W	F
R108	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R109	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R110	1-249-428-11	CARBON 8.2K 5% 1/4W	F

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R111	1-249-441-11	CARBON	100K	5%	1/4W	
R112	1-247-864-11	CARBON	24K	5%	1/4W	
R113	1-249-414-11	CARBON	560	5%	1/4W	F
R114	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R115	1-249-417-11	CARBON	1K	5%	1/4W	F
R116	1-249-433-11	CARBON	22K	5%	1/4W	
R117	1-249-429-11	CARBON	10K	5%	1/4W	
R118	1-249-429-11	CARBON	10K	5%	1/4W	
R119	1-247-887-00	CARBON	220K	5%	1/4W	
R120	1-249-441-11	CARBON	100K	5%	1/4W	
R121	1-249-437-11	CARBON	47K	5%	1/4W	
R122	1-249-434-11	CARBON	27K	5%	1/4W	
R123	1-249-441-11	CARBON	100K	5%	1/4W	
R124	1-247-807-31	CARBON	100	5%	1/4W	
R207	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R208	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R209	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R210	1-249-428-11	CARBON	8.2K	5%	1/4W	F
R211	1-249-441-11	CARBON	100K	5%	1/4W	
R212	1-247-864-11	CARBON	24K	5%	1/4W	
R213	1-249-414-11	CARBON	560	5%	1/4W	F
R214	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R215	1-249-434-11	CARBON	27K	5%	1/4W	
R216	1-249-433-11	CARBON	22K	5%	1/4W	
R218	1-249-429-11	CARBON	10K	5%	1/4W	
R219	1-247-887-00	CARBON	220K	5%	1/4W	
R220	1-249-441-11	CARBON	100K	5%	1/4W	
R221	1-249-437-11	CARBON	47K	5%	1/4W	
R222	1-249-434-11	CARBON	27K	5%	1/4W	
R223	1-249-441-11	CARBON	100K	5%	1/4W	
R301	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R303	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R305	1-249-417-11	CARBON	1K	5%	1/4W	F
R306	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R308	1-247-848-11	CARBON	5.1K	5%	1/4W	
R309	1-249-429-11	CARBON	10K	5%	1/4W	
R310	1-247-807-31	CARBON	100	5%	1/4W	
R311	1-247-807-31	CARBON	100	5%	1/4W	
R312	1-249-439-11	CARBON	68K	5%	1/4W	
R313	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R314	1-249-429-11	CARBON	10K	5%	1/4W	
R316	1-249-413-11	CARBON	470	5%	1/4W	F
R317	1-249-429-11	CARBON	10K	5%	1/4W	
R318	1-249-441-11	CARBON	100K	5%	1/4W	
R319	1-249-429-11	CARBON	10K	5%	1/4W	
R320	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R321	1-249-432-11	CARBON	18K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R351	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R353	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R355	1-249-417-11	CARBON	1K	5%	1/4W	F
R356	1-249-429-11	CARBON	10K	5%	1/4W	
R357	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R358	1-247-848-11	CARBON	5.1K	5%	1/4W	
R359	1-249-429-11	CARBON	10K	5%	1/4W	
R360	1-247-807-31	CARBON	100	5%	1/4W	
R361	1-247-807-31	CARBON	100	5%	1/4W	
R362	1-249-439-11	CARBON	68K	5%	1/4W	
R363	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R364	1-247-844-11	CARBON	3.6K	5%	1/4W	(TA590)
R364	1-249-424-11	CARBON	3.9K	5%	1/4W	F (A790)
⚠R365	1-212-863-00	FUSIBLE	18	5%	1/4W	F
R366	1-249-429-11	CARBON	10K	5%	1/4W	
R367	1-249-417-11	CARBON	1K	5%	1/4W	F
R368	1-247-866-11	CARBON	30K	5%	1/4W	
R369	1-249-434-11	CARBON	27K	5%	1/4W	
R370	1-249-434-11	CARBON	27K	5%	1/4W	
R371	1-249-432-11	CARBON	18K	5%	1/4W	
R401	1-249-441-11	CARBON	100K	5%	1/4W	
R402	1-247-838-00	CARBON	2K	5%	1/4W	
R403	1-249-435-11	CARBON	33K	5%	1/4W	
R404	1-249-441-11	CARBON	100K	5%	1/4W	
R405	1-249-441-11	CARBON	100K	5%	1/4W	
R406	1-249-441-11	CARBON	100K	5%	1/4W	
R408	1-249-437-11	CARBON	47K	5%	1/4W	
R409	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R410	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R411	1-249-417-11	CARBON	1K	5%	1/4W	F
R412	1-249-437-11	CARBON	47K	5%	1/4W	
R413	1-249-437-11	CARBON	47K	5%	1/4W	
R414	1-249-437-11	CARBON	47K	5%	1/4W	
R415	1-249-441-11	CARBON	100K	5%	1/4W	
R416	1-249-441-11	CARBON	100K	5%	1/4W	
R451	1-249-441-11	CARBON	100K	5%	1/4W	
R452	1-247-838-00	CARBON	2K	5%	1/4W	
R453	1-249-435-11	CARBON	33K	5%	1/4W	
R454	1-249-441-11	CARBON	100K	5%	1/4W	
R455	1-249-441-11	CARBON	100K	5%	1/4W	
R456	1-249-441-11	CARBON	100K	5%	1/4W	
R458	1-249-429-11	CARBON	10K	5%	1/4W	
R459	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R460	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R461	1-249-417-11	CARBON	1K	5%	1/4W	F
R462	1-249-437-11	CARBON	47K	5%	1/4W	
R463	1-249-437-11	CARBON	47K	5%	1/4W	
R464	1-249-437-11	CARBON	47K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description	Remark
R465	1-249-437-11	CARBON 47K 5% 1/4W	
R701	1-249-413-11	CARBON 470 5% 1/4W	F
R702	1-249-413-11	CARBON 470 5% 1/4W	F
R703	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R704	1-247-858-11	CARBON 13K 5% 1/4W	
R705	1-249-429-11	CARBON 10K 5% 1/4W	
R706	1-249-417-11	CARBON 1K 5% 1/4W	F
R707	1-247-850-11	CARBON 6.2K 5% 1/4W	
R708	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R709	1-249-429-11	CARBON 10K 5% 1/4W	
R710	1-249-429-11	CARBON 10K 5% 1/4W	
R711	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R712	1-219-137-11	FUSIBLE 0.33 10% 1/4W	
R713	1-219-137-11	FUSIBLE 0.33 10% 1/4W	
R714	1-247-807-31	CARBON 100 5% 1/4W	
R715	1-249-393-11	CARBON 10 5% 1/4W	F
R716	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R717	1-249-385-11	CARBON 2.2 5% 1/6W	F
R801	1-249-441-11	CARBON 100K 5% 1/4W	
R802	1-249-417-11	CARBON 1K 5% 1/4W	F
R804	1-249-429-11	CARBON 10K 5% 1/4W	
R805	1-249-429-11	CARBON 10K 5% 1/4W	
R806	1-249-429-11	CARBON 10K 5% 1/4W	
R807	1-249-429-11	CARBON 10K 5% 1/4W	
R808	1-249-435-11	CARBON 33K 5% 1/4W	
R809	1-249-435-11	CARBON 33K 5% 1/4W	
R810	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R811	1-249-429-11	CARBON 10K 5% 1/4W	
R812	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R813	1-249-429-11	CARBON 10K 5% 1/4W	
R814	1-249-429-11	CARBON 10K 5% 1/4W	
R815	1-247-807-31	CARBON 100 5% 1/4W	
R816	1-249-429-11	CARBON 10K 5% 1/4W	
R817	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R818	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R819	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R820	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R821	1-247-807-31	CARBON 100 5% 1/4W	
R822	1-247-807-31	CARBON 100 5% 1/4W	
R823	1-249-385-11	CARBON 2.2 5% 1/6W	F
R824	1-249-385-11	CARBON 2.2 5% 1/6W	F
R825	1-249-385-11	CARBON 2.2 5% 1/6W	F
R826	1-249-385-11	CARBON 2.2 5% 1/6W	F
R827	1-247-844-11	CARBON 3.6K 5% 1/4W	(A590)
R827	1-249-411-11	CARBON 330 5% 1/4W	(A790)
R828	1-247-856-00	CARBON 11K 5% 1/4W	(A590)
R828	1-249-411-11	CARBON 330 5% 1/4W	(A790)
R829	1-249-411-11	CARBON 330 5% 1/4W	(A790)
R829	1-249-416-11	CARBON 820 5% 1/4W	F (A590)

Ref. No.	Part No.	Description	Remark
R830	1-249-437-11	CARBON 47K 5% 1/4W	
R831	1-249-437-11	CARBON 47K 5% 1/4W	
R833	1-247-807-31	CARBON 100 5% 1/4W	
R834	1-247-807-31	CARBON 100 5% 1/4W	
R835	1-249-435-11	CARBON 33K 5% 1/4W	(A790)
R836	1-249-416-11	CARBON 820 5% 1/4W	F (A790)
R837	1-249-425-11	CARBON 4.7K 5% 1/4W	F (A790)
R838	1-247-887-00	CARBON 220K 5% 1/4W	
R839	1-247-887-00	CARBON 220K 5% 1/4W	
R840	1-249-437-11	CARBON 47K 5% 1/4W	
R841	1-249-429-11	CARBON 10K 5% 1/4W	
R842	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R843	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R851	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R852	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R853	1-249-434-11	CARBON 27K 5% 1/4W	
R854	1-247-807-31	CARBON 100 5% 1/4W	
R855	1-247-807-31	CARBON 100 5% 1/4W	
R856	1-247-807-31	CARBON 100 5% 1/4W	
R857	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R858	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R859	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R860	1-249-434-11	CARBON 27K 5% 1/4W	
R861	1-247-807-31	CARBON 100 5% 1/4W	
R862	1-247-807-31	CARBON 100 5% 1/4W	
R863	1-247-807-31	CARBON 100 5% 1/4W	
R864	1-247-807-31	CARBON 100 5% 1/4W	
		< VARIABLE RESISTOR >	
RV301	1-241-630-11	RES, ADJ, CARBON 10K	
RV351	1-241-630-11	RES, ADJ, CARBON 10K	
RV401	1-241-628-11	RES, ADJ, CARBON 2.2K	
		< TRANSFORMER >	
T101	1-236-087-11	FILTER, LOW PASS	
T201	1-236-087-11	FILTER, LOW PASS	
		< TEST PIN >	
* TP101	1-564-506-11	PLUG, CONNECTOR 3P	
		< VIBRATOR >	
X801	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	

****

Ref. No.	Part No.	Description	Remark
*	1-634-841-14	LEAF SW (A) BOARD (DECK A)	
		*************************	
		< CONNECTOR >	
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	
		< IC >	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
		< RESISTOR >	
R84	1-249-417-11	CARBON 1K 5% 1/4W	F
R85	1-249-408-11	CARBON 180 5% 1/4W	F
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY)(STOP)	
S82	1-571-281-21	SWITCH, LEAF (70uEQ)	
S86	1-571-281-21	SWITCH, LEAF (HALF)	

****

Ref. No.	Part No.	Description	Remark
*	1-634-841-14	LEAF SW (B) BOARD (DECK B)	
		*************************	
		< CONNECTOR >	
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	
		< IC >	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
		< RESISTOR >	
R81	1-249-414-11	CARBON 560 5% 1/4W	F
R82	1-247-818-11	CARBON 300 5% 1/4W	
R83	1-247-834-11	CARBON 1.3K 5% 1/4W	
R84	1-249-417-11	CARBON 1K 5% 1/4W	F
R85	1-249-408-11	CARBON 180 5% 1/4W	F
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY)(STOP)	
S82	1-571-281-21	SWITCH, LEAF (70uEQ)	
S83	1-571-281-21	SWITCH, LEAF (METAL)	
S84	1-571-281-21	SWITCH, LEAF (REC A)	
S85	1-571-281-21	SWITCH, LEAF (REC B)	
S86	1-571-281-21	SWITCH, LEAF (HALF)	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		************	
1	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
62	1-765-079-11	WIRE (FLAT TYPE) (31 CORE)	
271	1-638-983-11	MOTOR FLEXIBLE BOARD	
HP101	A-2003-838-F	DECK ASSY, HEAD (DECK A)	
HRP101	A-2004-190-F	DECK ASSY, HEAD (DECK B)	
M101	X-3365-377-1	MOTOR ASSY (CAPSTAN)	
M102	X-3363-501-1	MOTOR ASSY (REEL)	

****

ACCESSORIES & PACKING MATERIALS

****

Ref. No.	Part No.	Description	Remark
*	3-350-154-01	CUSHION	
*	3-704-350-01	SHEET (STANDARD), PROTECTION	

****

****

HARDWARE LIST

****

Ref. No.	Part No.	Description
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-621-773-93	SCREW (PANEL 2.6 TP2)
#7	7-621-775-00	SCREW +B 2.6X3
#8	7-627-556-08	SCREW +P 2.6X2.8

ST-A790

SERVICE MANUAL

E Model
East European Model
CIS Model
Australian Model
PX Model
Tourist Model

SONY
FM SONY A1

- This set is the tuner section in LBT-A590/A595/A790/A795.

SPECIFICATIONS

Tuner

System	FM stereo FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 to 108 MHz (EXCEPT East European, CIS model) FM1: 65 to 74 MHz (East European, CIS model) FM2: 87.5 to 108 MHz (East European, CIS model)
Antenna	75 ohms unbalanced 300 ohms balanced (EXCEPT East European, CIS mode)
Intermediate frequency	10.7 MHz
AM tuner section	
Tuning range	AM: 531 to 1,602 kHz (at 9 kHz interval) (Saudi Arabia model) 530 to 1,710 kHz (at 10 kHz interval) (EXCEPT Saudi Arabia model) MW: 531 to 1,602 kHz (East European, CIS model) LW: 153 to 279 kHz (East European, CIS model)
Antenna	AM loop antenna External antenna terminal
Intermediate frequency	450 kHz
Power requirements	120 V/220–240 V AC, adjustable with the voltage selector, 50/60 Hz (E, Saudi Arabia, Singapore, Malaysia, PX, Tourist model) 220–230 V AC, 50/60 Hz (East European, CIS model) 120 V AC, 60 Hz (Mexican model) 240 V AC, 50/60 Hz (Australian model)
Power consumption	11 W (CIS model) 10 W (EXCEPT CIS model)
AC outlet	2 swicthed, total 450 W max.
Weight	Approx. 2.6 kg (5 lbs 12 oz)
Dimensions	Approx. 355 x 95 x 325 mm (14 x 3 3/4 x 12 13/16 inches) (w/h/d, including projections)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

FM STEREO/FM-AM TIMER TUNER

使用時は添付資料も参照のこと
Refer to the additional documents.

SONY®

SECTION 1
GENERAL

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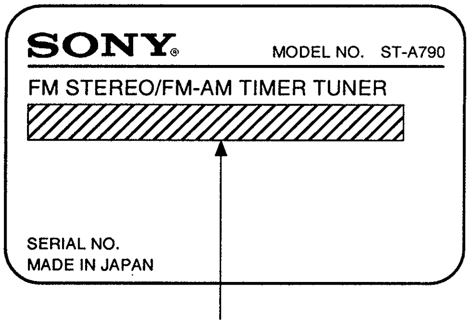
MODEL IDENTIFICATION

— Specification Labels —



SONY MODEL NO. ST-A790

FM STEREO/FM-AM TIMER TUNER

SERIAL NO.
MADE IN JAPAN

E, Saudi Arabia, Singapore,
Malaysia, PX, Tourist model : AC : 120V/220V — 240V~50/60Hz 10W
East European model : AC : 220V — 230V~50/60Hz 10W
CIS model : AC : 220V — 230V~50/60Hz 11W
Mexican model : AC : 120V~60Hz 10W
Australian model : AC : 240V~50/60Hz 10W

This section is extracted from instruction manual.

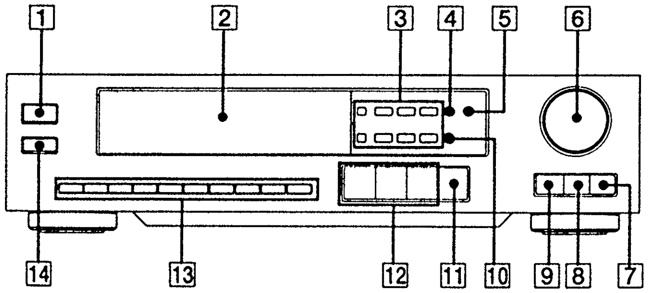
Location of Controls

Refer to the pages indicated in parenthesis for details.

Tuner (ST-A790) A

1 SYSTEM POWER switch (18)
2 Display window
3 Buttons for setting the clock and timer (16, 104, 108)
4 TUNING MODE button (22)
5 DISPLAY button (32)
6 TUNING knob (22)
7 CHARACTER button (30)
8 ST/MONO button (22)
9 MEMORY button (28)
10 MEMORY SCAN button (32)
11 BAND selector (22)
12 SHIFT buttons (A, B, C)(28)
13 Numeric buttons (28)
14 SLEEP button (102)

A



SECTION 2
ELECTRICAL ADJUSTMENTS

Precautions in Repairing

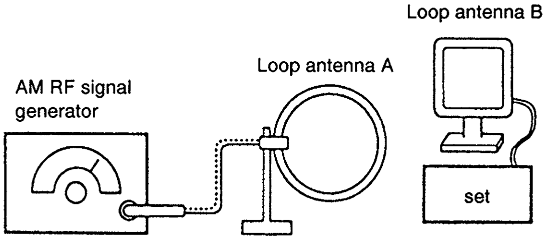
If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

The FM TUNED level must be adjusted after the AM TUNED level adjustment has completed.

AM SECTION

AM Tuning Level Adjustment

Setting :
BAND switch : MW (AM)


Loop antenna B
Loop antenna A
AM RF signal generator
set

Carrier frequency : 999kHz
30% amplitude
modulation by 400Hz signal

Procedure :

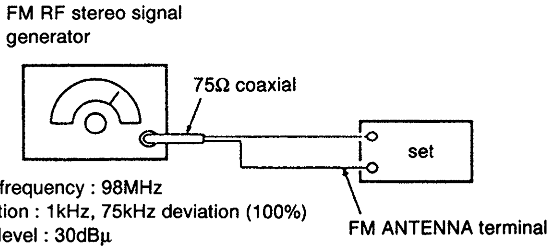
1. Set loop antenna A so that the loop antenna B input level becomes 58dBμ/m.
2. Tune the set to 999kHz.
3. Adjust the RV1 so that the TUNED indicator goes on.

Adjustment Location : TUNER board

FM SECTION

FM Tuning Level Adjustment

Setting :
BAND switch : FM


FM RF stereo signal generator
75Ω coaxial
set
FM ANTENNA terminal

Carrier frequency : 98MHz
Modulation : 1kHz, 75kHz deviation (100%)
Output level : 30dBμ

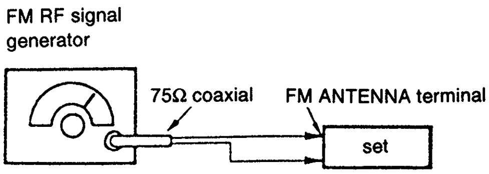
Procedure :

1. Tune the set to 98MHz.
2. Adjust RV2 so that the TUNED indicator goes on.

Adjustment Location : TUNER board

FM POLAR Adjustment (CIS model only)

Setting :
BAND switch : FM


FM RF signal generator
75Ω coaxial
FM ANTENNA terminal
set

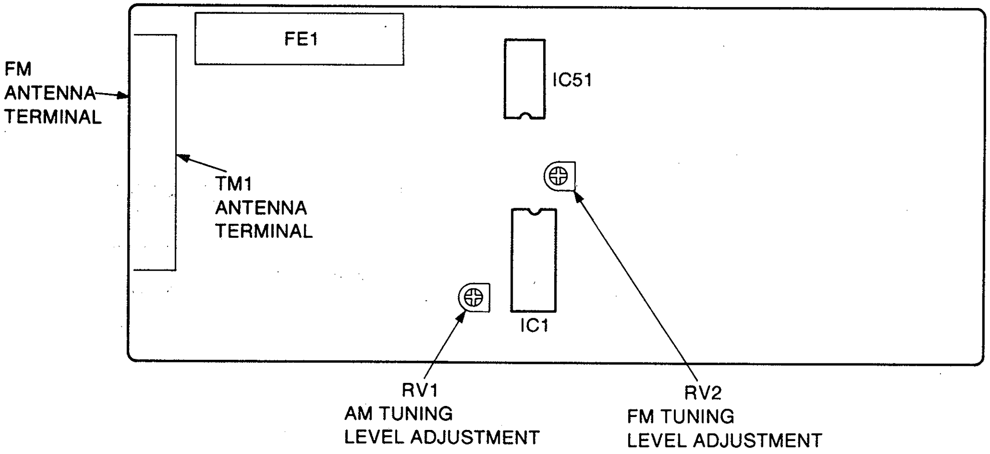
Carrier frequency : 69MHz
Output level : 1mV (60dBμ)

1. Connect the frequency counter to the TP1702 and adjust the RV1702 for a frequency of 31.25kHz ± 50Hz.
2. Connect the VTVM to the TP1701, receive the signal of 69MHz ± 1kHz (1kHz dev.) and adjust the reading of the VTVM to 0dB.
3. Set the modulation frequency of the FM RF signal generator to 31.25kHz (10kHz dev.) and adjust the L1701 so that the reading of the VTVM is 0dB.
4. Adjust the RV1701 so that the reading of the VTVM to 14dB.
5. Check that the separation between Pins 13 and 11 of the CN1701 is more than 18dB.

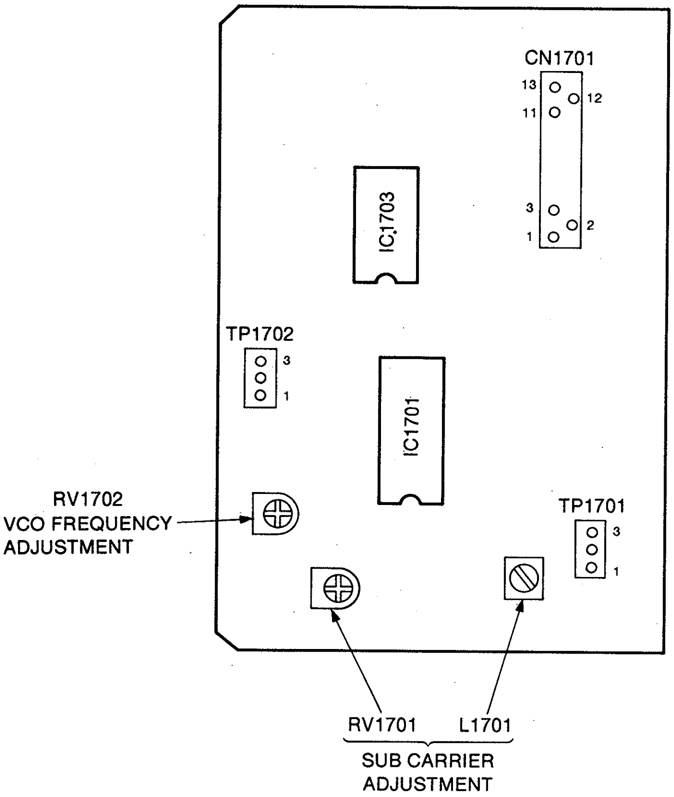
Adjustment Location : POLAR board

Adjustment Location :

[TUNER BOARD] (COMPONENT SIDE)


FE1
IC51
FM
ANTENNA
TERMINAL
TM1
ANTENNA
TERMINAL
IC1
RV1
AM TUNING
LEVEL ADJUSTMENT
RV2
FM TUNING
LEVEL ADJUSTMENT

[POLAR BOARD]
(COMPONENT SIDE)


CN1701
13
12
11
3
2
1
IC1703
TP1702
3
1
IC1701
RV1702
VCO FREQUENCY
ADJUSTMENT
TP1701
3
1
RV1701
L1701
SUB CARRIER
ADJUSTMENT

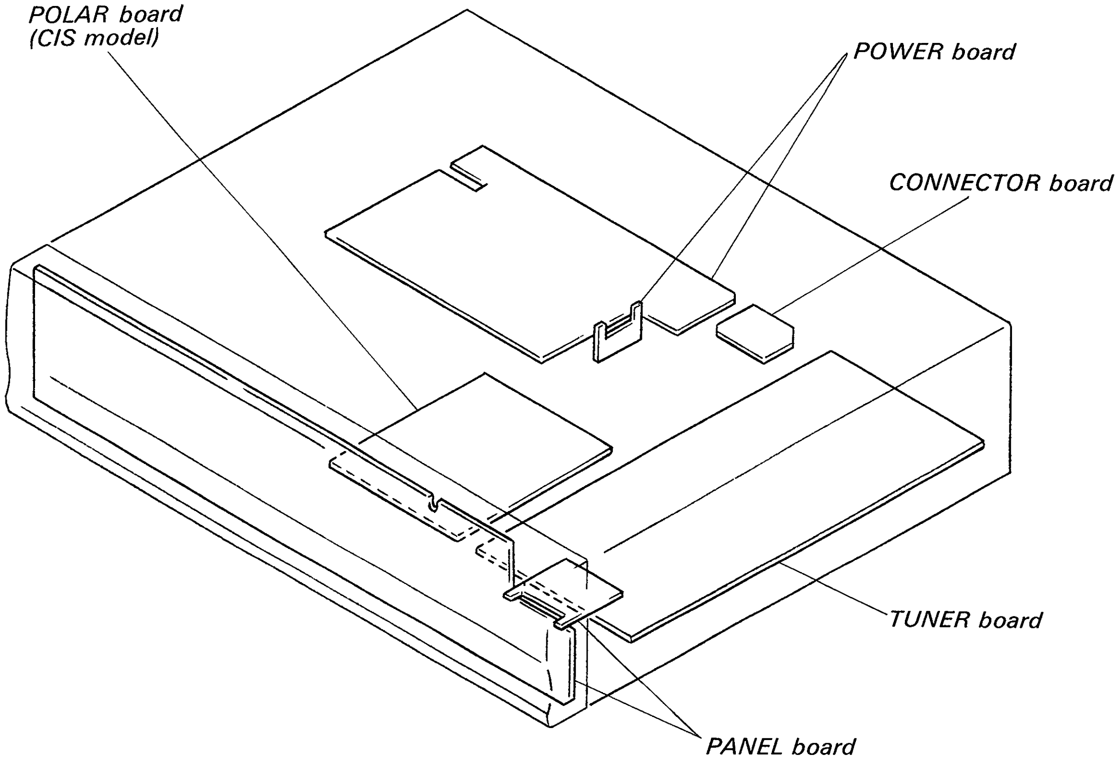
SECTION 3
DIAGRAMS

3-1. IC PIN FUNCTION

• IC601 SYSTEM CONTROL MICROPROCESSOR (TMP47C1270AN-H228)

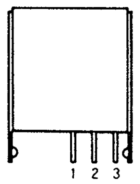
Pin No.	Pin Name	I/O	Function
1	VKK	–	Negative power supply for the FL tube (FL601)
2 — 13	S4 — S15	O	Segment signal output to the FL tube (FL601)
14 — 17	KO0 — KO3	O	Key scan signal output
18	TEST	I	Test input (Fixed at "L")
19	XIN	I	Main system clock input (8.388608 MHz)
20	XOUT	O	Main system clock output
21	HOLD	I	Power failure detection input
22	RESET	I	Reset signal input
23	IF COUNT NG	O	F monitor output (IF count NG)
24	R60	I	Key return input
25	R61	–	Not used (connected to ground)
26, 27	R62, 63	I	Diode input terminal
28 — 31	P10 — P13	O	Key scan signal output
32	GND	–	Ground terminal
33 — 35	P20 — P22	O	Key scan signal output
36	P23	O	Not used (Fixed at "H")
37	RELAY	O	Power ON/OFF control output to RY801
38	MUTING	O	Muting signal output
39	TUNED IN	I	TUNED indication signal input
40	STEREO IN	I	STEREO indication signal input
41	SIRCS IN	I	Sircs signal input from the remote control receiver (IC602)
42	AUB OUT	O	Audio bus output
43	AUB IN	I	Audio bus input
44	CE	O	Chip enable signal output to the PLL (IC51 LC7218)
45	SI	I	Data signal input from the PLL (IC51 LC7218)
46	SO	O	Data signal output to the PLL (IC51 LC7218)
47	SCK	O	Clock signal output to the PLL (IC51 LC7218)
48, 49	—	–	No connection
50 — 59	T0 — T9	O	Digit signal output to the FL tube (FL601)
60 — 63	S0 — S3	O	Segment signal output to the FL tube (FL601)
64	VDD	–	Power supply terminal (+5V)

3-2. CIRCUIT BOARDS LOCATION


POLAR board
(CIS model)
POWER board
CONNECTOR board
TUNER board
PANEL board

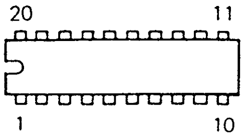
3-3. SEMICONDUCTOR LEAD LAYOUTS

GP1U52XB



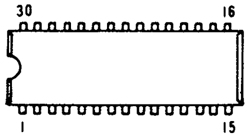
1 Vout
2 Vcc
3 GND

IR3R42



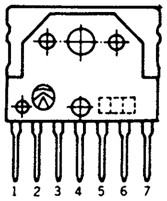
(Top view)

LA1835

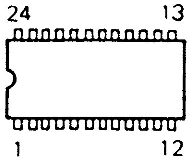


(Top view)

LA5667

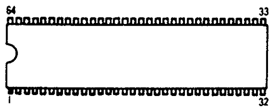


LC7218-ST



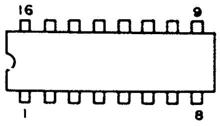
(Top view)

TMP47C1270AN-H228



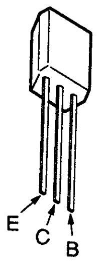
(Top view)

μPD4053BC

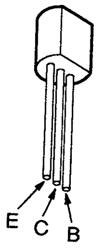


(TOP VIEW)

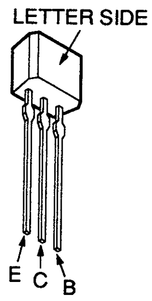
DTA114ES
DTA124ES
DTC114ES
2SC2603-EF
2SC2669-OY



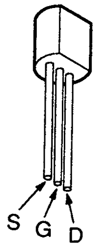
2SB1116A-L
2SC3112-B



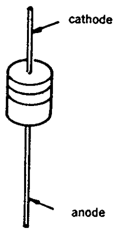
2SA1175-HFE


LETTER SIDE
E
C
B

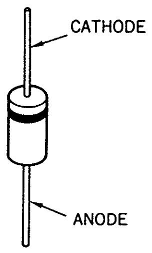
2SK246-GR3



HZS30-2L
UZL-7H1
UZL-9M3
1N4148M
11ES2


cathode
anode

UZP-5.6B
UZP-8.2BC


CATHODE
ANODE

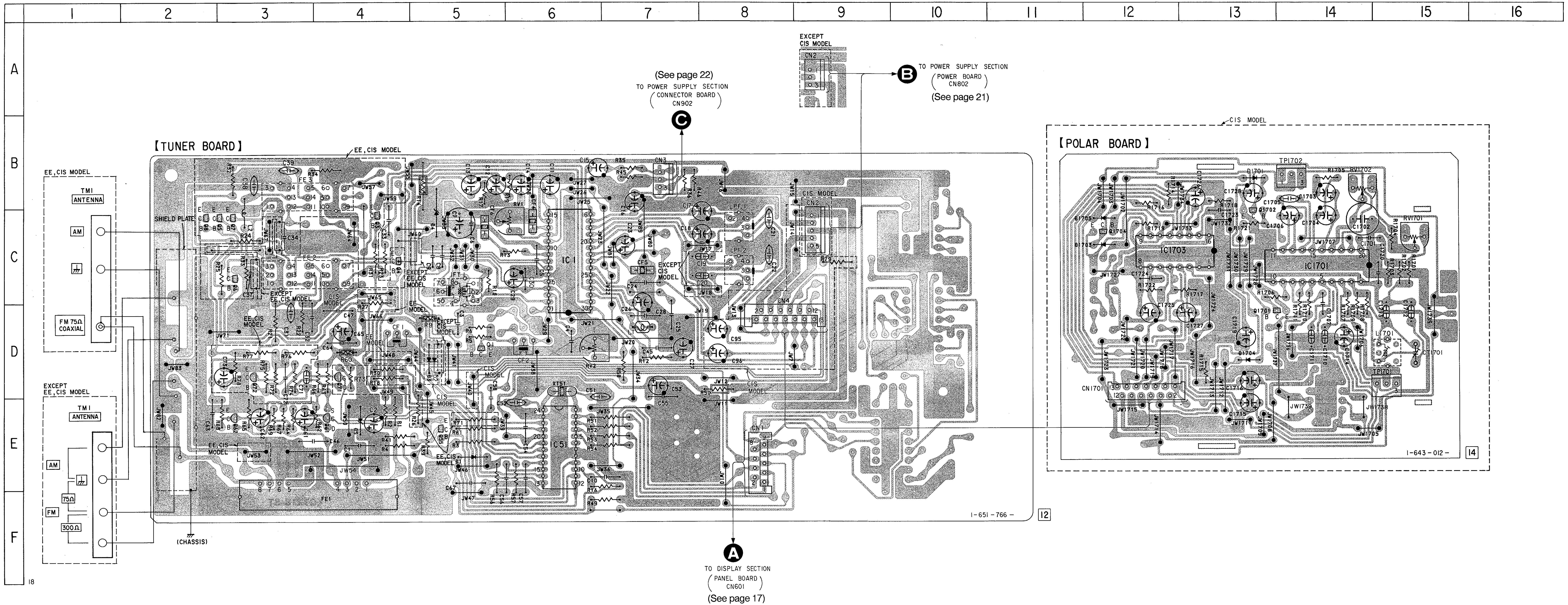
3-4. PRINTED WIRING BOARDS —TUNER Section—

● See page 6 for Circuit Boards Location. ● See page 7 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location
D1	E-5
○ D2	D-5
○ D3	D-5
D4	C-5
D5	E-4
○ D1701	B-13
○ D1703	C-12
○ D1704	D-13
○ D1705	C-12
IC1	C-6
IC51	E-6
○ IC1701	C-14
○ IC1703	C-12
Q1	D-5
× Q3	C-4
× Q4	C-4
× Q5	C-3
× Q6	C-3
× Q7	C-3
× Q8	C-2
Q55	E-5
Q61	E-4
Q62	E-3
× Q71	D-4
× Q72	D-3
○ Q1701	D-13
○ Q1702	C-13
○ Q1704	C-12

○ : CIS MODEL ONLY
× : EE, CIS MODEL ONLY



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
【TUNER BOARD】
EE, CIS MODEL
EE, CIS MODEL
TM1
ANTENNA
AM
FM 75Ω COAXIAL
EXCEPT EE, CIS MODEL
TM1
ANTENNA
AM
75Ω
FM
300Ω
SHIELD PLATE
(CHASSIS)
IC1
IC51
FE1
FE2
FE3
CN1
CN3
CN4
(See page 22)
TO POWER SUPPLY SECTION
(CONNECTOR BOARD CN902)
C
EXCEPT CIS MODEL
CN2
B
TO POWER SUPPLY SECTION
(POWER BOARD CN802)
(See page 21)
A
TO DISPLAY SECTION
(PANEL BOARD CN601)
(See page 17)
1-651-766-
12
CIS MODEL
【POLAR BOARD】
IC1701
IC1703
CN1701
TP1701
TP1702
RV1701
RV1702
1-643-012-
14
18

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- [ ]⊷ indicates side identified with part number.
- ▨ : Pattern on the side which is seen.
- Abbreviations
  EE : East European
  CIS : Common Independent States

Note on Schematic Diagram:

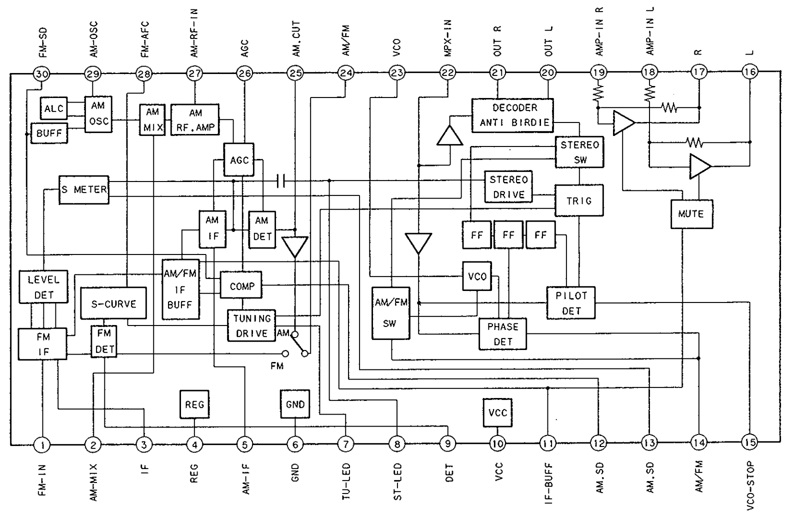
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.

> **Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.

- B+ : B+ Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under detuned conditions.
  no mark : FM
  ( ): MW
  < >: LW
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨⇨ : MW or LW
- Abbreviations
  EE : East European
  CIS : Common Independent States

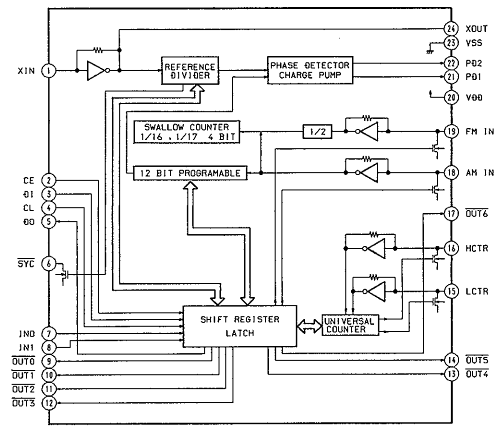
- **IC Block Diagrams**

IC1 LA1835



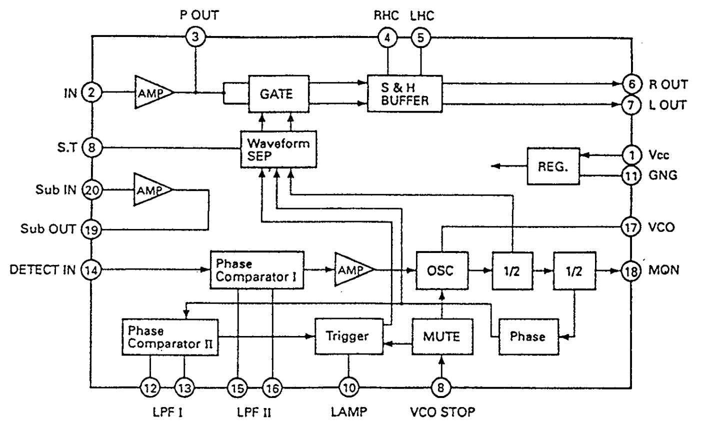
FM-SD
FM-IN
ALC
BUFF
S METER
LEVEL DET
FM IF
S-CURVE
DECODER ANTI BIRDIE
STEREO SW
TRIG
PILOT DET
PHASE DET
VCO
MUTE
REG
GND
VCC

IC51 LC7218-ST



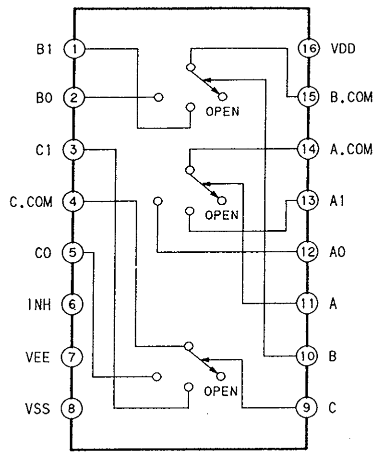
XIN
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
SWALLOW COUNTER
12 BIT PROGRAMABLE
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
XOUT
VSS
PD2
PD1
VDD
FM IN
AM IN

IC1701 IR3R42



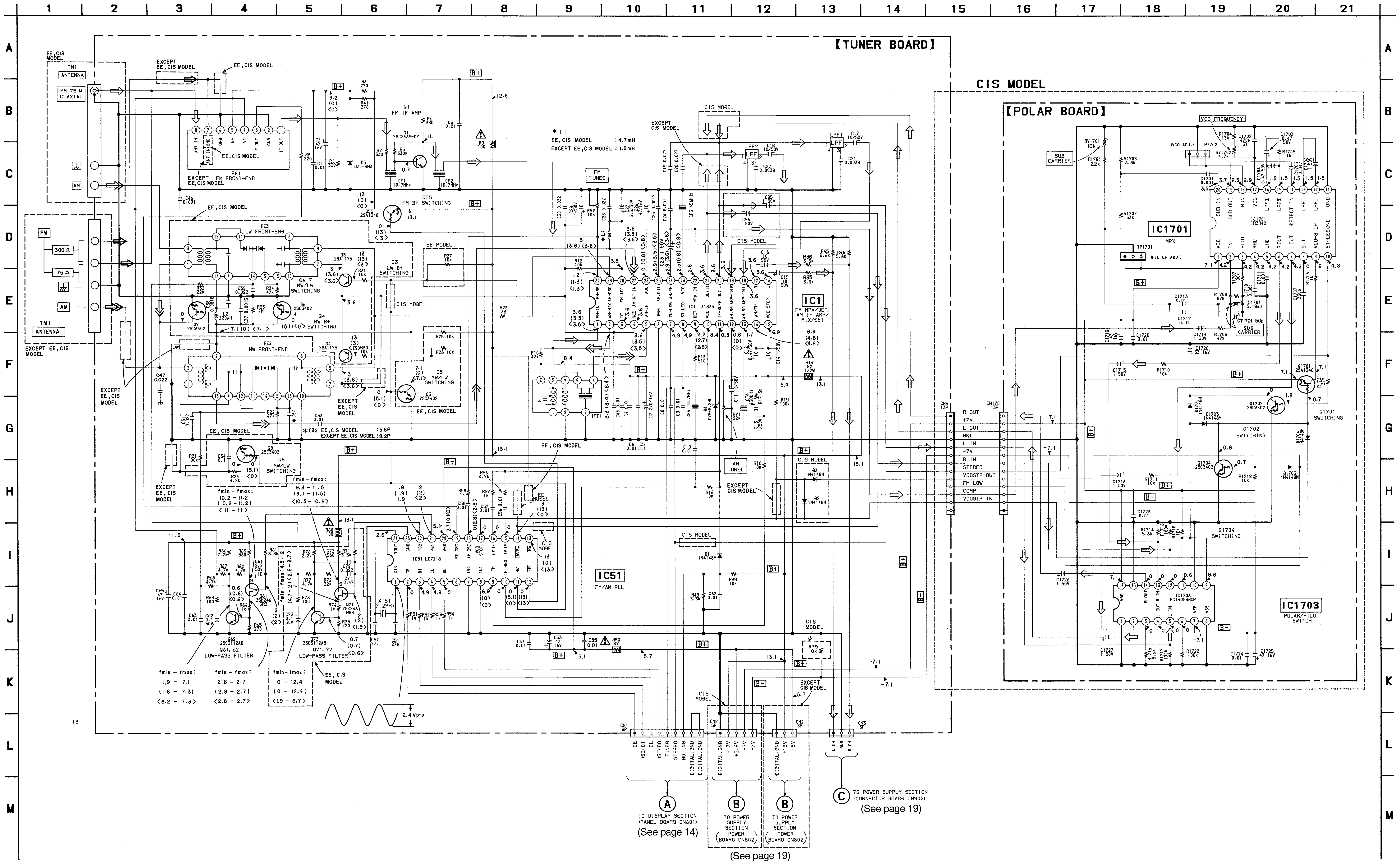
P OUT
RHC
LHC
IN
S.T
Sub IN
Sub OUT
DETECT IN
AMP
GATE
S&H BUFFER
Waveform SEP
REG.
AMP
Phase Comparator I
AMP
OSC
1/2
1/2
Phase Comparator II
Trigger
MUTE
Phase
R OUT
L OUT
Vcc
GNG
VCO
MON
LPF I
LPF II
LAMP
VCO STOP

IC1703 µPD4053BC



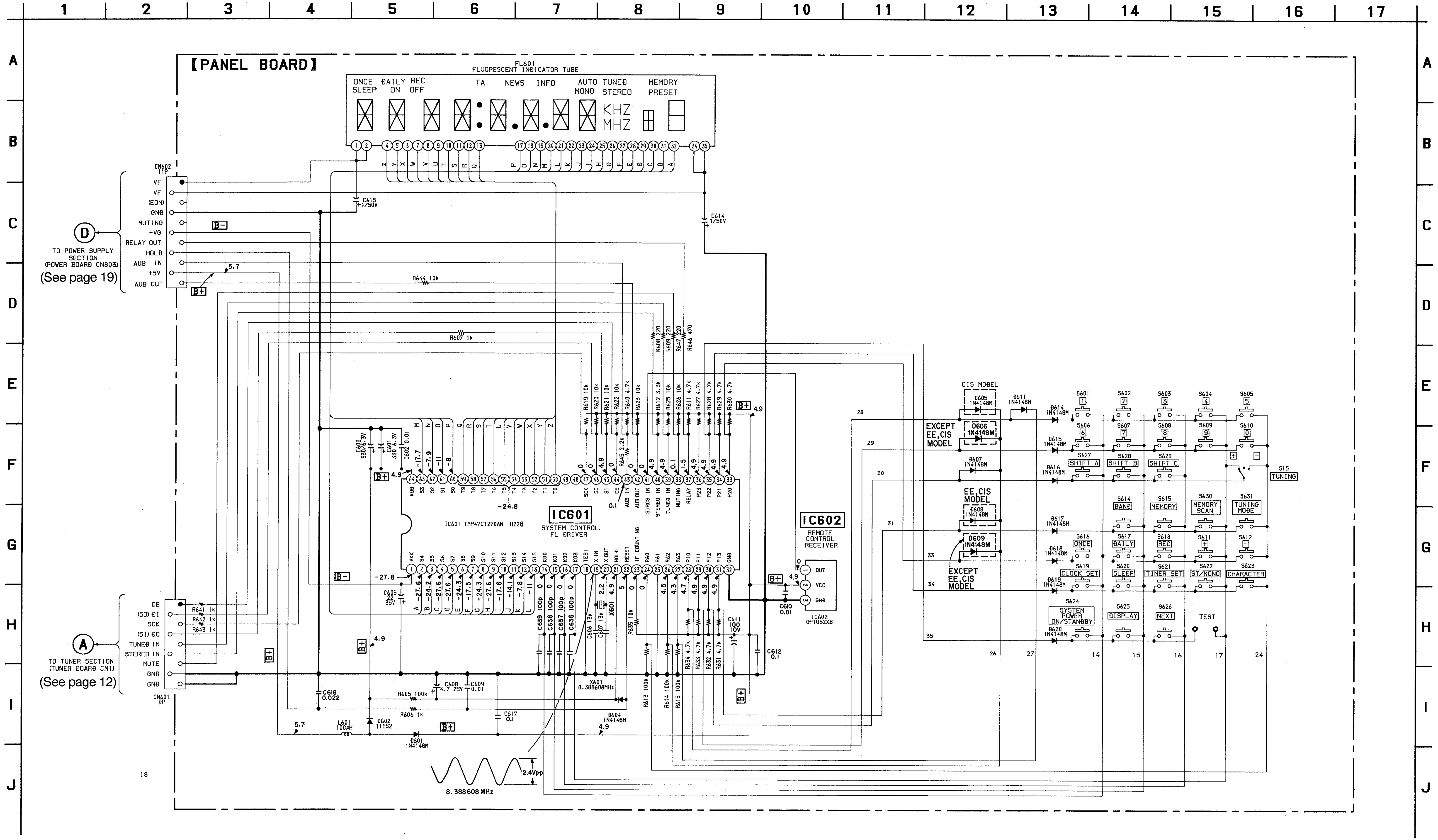
B1
B0
C1
C.COM
C0
INH
VEE
VSS
VDD
B.COM
A.COM
A1
A0
A
B
C
OPEN
OPEN
OPEN

3-5. SCHEMATIC DIAGRAM —TUNER Section—



【TUNER BOARD】
CIS MODEL
【POLAR BOARD】
IC1
FM MPX/DET. AM IF AMP/ MIX/DET
IC51
FM/AM PLL
IC1701
MPX
IC1703
POLAR/PILOT SWITCH
TO DISPLAY SECTION (PANEL BOARD CN601)
(See page 14)
TO POWER SUPPLY SECTION (POWER BOARD CN802)
(See page 19)
TO POWER SUPPLY SECTION (CONNECTOR BOARD CN902)
(See page 19)

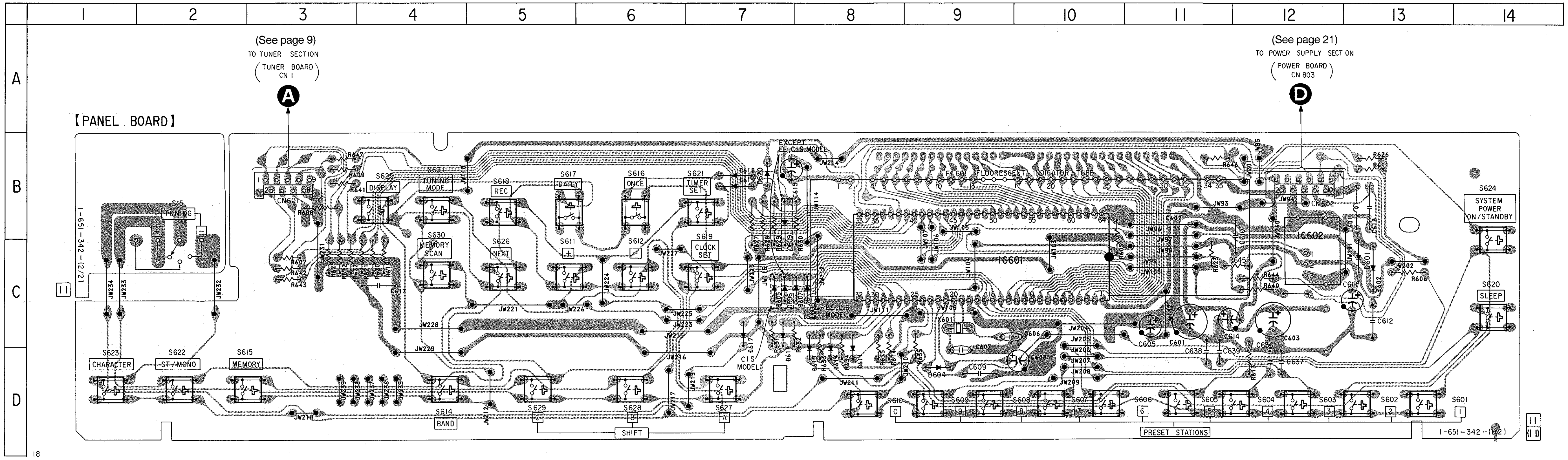
3-6. SCHEMATIC DIAGRAM —DISPLAY Section—


【PANEL BOARD】
FL601
FLUORESCENT INDICATOR TUBE
ONCE SLEEP
DAILY ON
REC OFF
TA
NEWS
INFO
AUTO MONO
TUNED STEREO
MEMORY PRESET
KHZ
MHZ
CN602 11P
VF
VF
(EON)
GND
MUTING
-VG
RELAY OUT
HOLD
AUB IN
+5V
AUB OUT
D
TO POWER SUPPLY SECTION (POWER BOARD CN803)
(See page 19)
C615 1/50V
C614 1/50V
R644 10k
R607 1k
5.7
IC601
SYSTEM CONTROL, FL DRIVER
IC601 TMP47C1270AN -H228
VDD
VKK
SCK
SO
SI
CE
AUB IN
AUB OUT
SIRCS IN
STEREO IN
TUNED IN
MUTING
RELAY
TEST
X IN
X OUT
HOLD
RESET
IF COUNT NG
GND
-24.8
-27.8
C603 330/6.3V
C601 330 6.3V
C602 0.01
C605 22 35V
C636 100p
C637 100p
C638 100p
C639 100p
C606 13p
C607 13p
X601
X601 8.388608MHz
R635 10k
R645 2.2k
C611 100 10V
C612 0.1
R631 4.7k
R632 4.7k
R633 4.7k
R634 4.7k
R613 100k
R614 100k
R615 100k
IC602
REMOTE CONTROL RECEIVER
OUT
VCC
GND
C610 0.01
IC602 GP1U52XB
CE
(SO) DI
SCK
(SI) DO
TUNED IN
STEREO IN
MUTE
GND
GND
CN601 9P
R641 1k
R642 1k
R643 1k
A
TO TUNER SECTION (TUNER BOARD CN1)
(See page 12)
C618 0.022
R605 100k
R606 1k
C608 4.7 25V
C609 0.01
C617 0.1
L601 100µH
D602 11E52
D601 1N4148M
D604 1N4148M
4.9
2.4Vpp
8.388608 MHz
CIS MODEL
D605 1N4148M
EXCEPT EE,CIS MODEL
D606 1N4148M
D607 1N4148M
EE,CIS MODEL
D608 1N4148M
D609 1N4148M
D611 1N4148M
D614 1N4148M
D615 1N4148M
D616 1N4148M
D617 1N4148M
D618 1N4148M
D619 1N4148M
D620 1N4148M
S601 1
S602 2
S603 3
S604 4
S605 5
S606 6
S607 7
S608 8
S609 9
S610 0
S627 SHIFT A
S628 SHIFT B
S629 SHIFT C
S15 TUNING
S614 BAND
S615 MEMORY
S630 MEMORY SCAN
S631 TUNING MODE
S616 ONCE
S617 DAILY
S618 REC
S611 +
S612 −
S619 CLOCK SET
S620 SLEEP
S621 TIMER SET
S622 ST/MONO
S623 CHARACTER
S624 SYSTEM POWER ON/STANDBY
S625 DISPLAY
S626 NEXT
TEST
B+
B−

Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- B− : B− Line
- Voltage and waveforms are dc with respect to ground under detuned conditions.
  no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Abbreviations
  EE : East European
  CIS : Common Independent States

3-7. PRINTED WIRING BOARD —DISPLAY Section— ●See page 6 for Circuit Boards Location. ●See page 7 for Semiconductor Lead Layouts.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
(See page 9)
TO TUNER SECTION
(TUNER BOARD CN 1)
A
(See page 21)
TO POWER SUPPLY SECTION
(POWER BOARD CN 803)
D
【PANEL BOARD】
1-651-342-(2/2)
1-651-342-(1/2)
S15 TUNING
CN601
S625 DISPLAY
S631 TUNING MODE
S618 REC
S617 DAILY
S616 ONCE
S621 TIMER SET
S630 MEMORY SCAN
S626 NEXT
S611 +
S612 −
S619 CLOCK SET
EXCEPT EE,CIS MODEL
FL601 FLUORESSENT INDICATOR TUBE
IC601
IC602
CN602
S624 SYSTEM POWER ON/STANDBY
S620 SLEEP
EE,CIS MODEL
CIS MODEL
X601
S623 CHARACTER
S622 ST/MONO
S615 MEMORY
S614 BAND
S629 C
S628 B
S627 A
SHIFT
S610 0
S609 9
S608 8
S607 7
S606 6
S605 5
S604 4
S603 3
S602 2
S601 1
PRESET STATIONS
18

• Semiconductor Location

Ref. No.	Location
D601	C - 13
D602	C - 13
D604	D - 9
○ D605	C - 7
△ D606	C - 7
D607	C - 8
× D608	C - 8
△ D609	B - 7
D611	D - 8
D614	D - 8
D615	D - 8
D616	C - 7
D617	C - 7
D618	B - 7
D619	B - 7
D620	B - 7
IC601	C - 9
IC602	B - 12

○ : CIS MODEL ONLY
△ : EXCEPT EE, CIS MODEL ONLY
× : EE, CIS MODEL ONLY

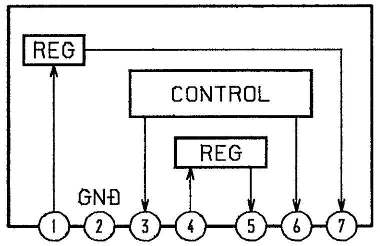
Note on Printed Wiring Board:

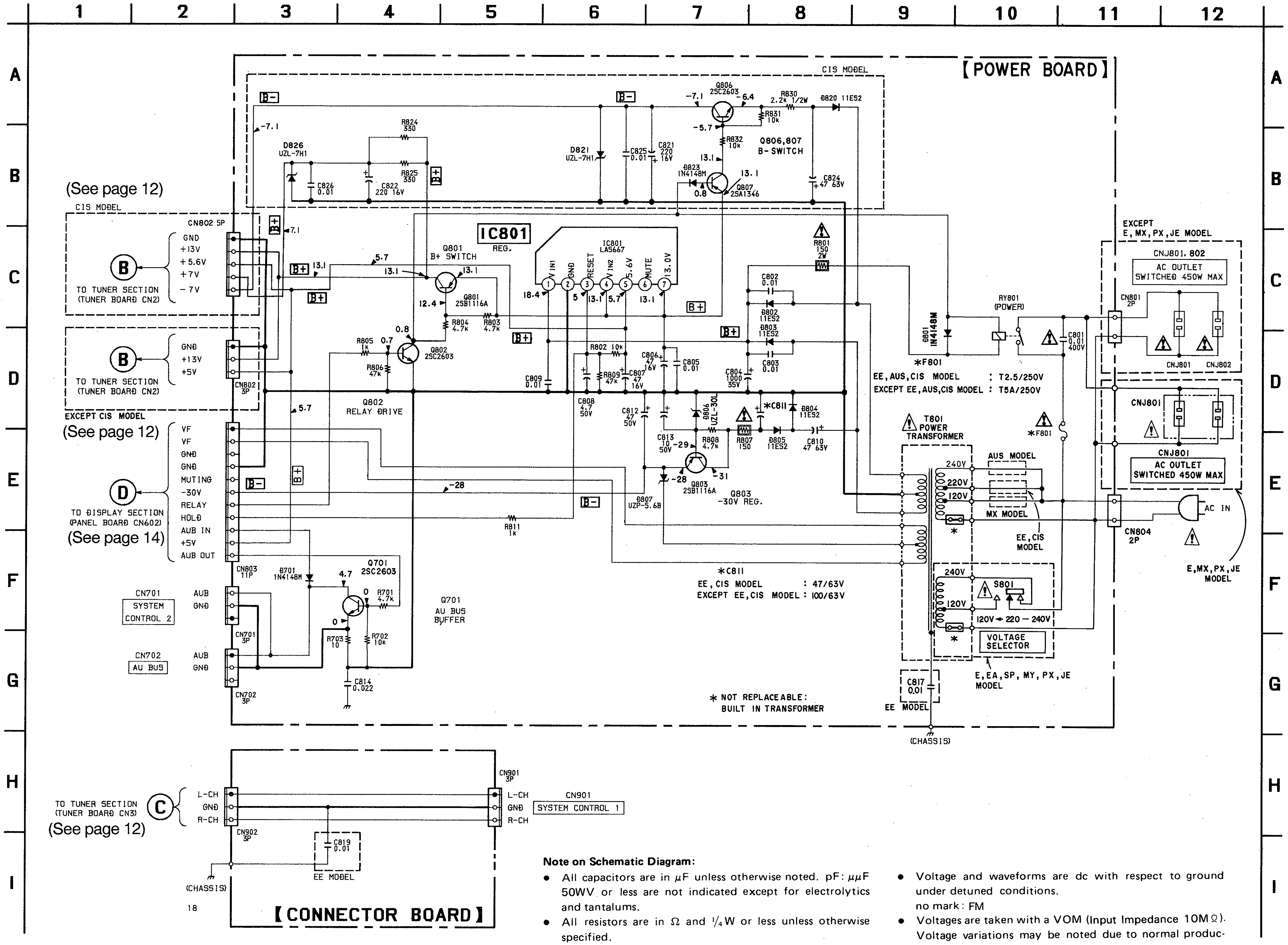
- ○—— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.
- Abbreviations
  - EE : East European
  - CIS : Common Independent States

3-8. SCHEMATIC DIAGRAM —POWER SUPPLY Section—

- IC Block Diagram

IC801 LA5667


REG
CONTROL
REG
GND
1
2
3
4
5
6
7


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
【POWER BOARD】
CIS MODEL
(See page 12)
CN802 5P
GND
+13V
+5.6V
+7V
−7V
TO TUNER SECTION (TUNER BOARD CN2)
GND
+13V
+5V
CN8021 3P
EXCEPT CIS MODEL
(See page 12)
VF
VF
GND
GND
MUTING
−30V
RELAY
HOLD
AUB IN
+5V
AUB OUT
TO DISPLAY SECTION (PANEL BOARD CN602)
(See page 14)
CN803 11P
CN701 SYSTEM CONTROL 2
CN702 AU BUS
AUB
GND
CN701 3P
CN702 3P
D826 UZL-7H1
C826 0.01
C822 220 16V
R824 330
R825 330
IC801
REG.
Q801 B+ SWITCH
Q801 2SB1116A
R804 4.7k
R803 4.7k
R805 1k
R806 47k
Q802 2SC2603
Q802 RELAY DRIVE
D701 1N4148M
Q701 2SC2603
R701 4.7k
R702 10k
R703 10
C814 0.022
Q701 AU BUS BUFFER
IC801 LA5667
V IN1
GND
RESET
V IN2
5.6V
MUTE
13.0V
D821 UZL-7H1
C825 0.01
C821 220 16V
Q806 2SC2603
R830 2.2k 1/2W
D820 11ES2
R831 10k
R832 10k
Q806,807 B- SWITCH
D823 1N4148M
Q807 2SA1346
C824 47 63V
R801 150 2W
C802 0.01
D802 11ES2
D803 11ES2
C803 0.01
R802 10k
C806 47 16V
C805 0.01
C809 0.01
R809 47k
C807 47 16V
C804 1000 35V
C808 4.7 50V
C812 47 50V
C813 10 50V
D806 UZL-30L
R808 4.7k
R807 150
D805 11ES2
*C811
D804 11ES2
C810 47 63V
D807 UZP-5.6B
Q803 2SB1116A
Q803 −30V REG.
R811 1k
D801 1N4148M
RY801 (POWER)
C801 0.01 400V
*F801
EE,AUS,CIS MODEL : T2.5/250V
EXCEPT EE,AUS,CIS MODEL : T5A/250V
T801 POWER TRANSFORMER
240V
220V
120V
AUS MODEL
MX MODEL
EE,CIS MODEL
S801
120V ↔ 220 − 240V
VOLTAGE SELECTOR
E,EA,SP,MY,PX,JE MODEL
C817 0.01
EE MODEL
(CHASSIS)
*C811
EE, CIS MODEL : 47/63V
EXCEPT EE,CIS MODEL : 100/63V
* NOT REPLACEABLE: BUILT IN TRANSFORMER
EXCEPT E,MX,PX,JE MODEL
CNJ801, 802
AC OUTLET SWITCHED 450W MAX
CN801 2P
CNJ801
CNJ802
AC OUTLET SWITCHED 450W MAX
AC IN
CN804 2P
E,MX,PX,JE MODEL
B+
B−
TO TUNER SECTION (TUNER BOARD CN3)
(See page 12)
L-CH
GND
R-CH
CN902 3P
C819 0.01
EE MODEL
(CHASSIS)
18
【CONNECTOR BOARD】
CN901 3P
CN901 SYSTEM CONTROL 1

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ : nonflammable resistor.

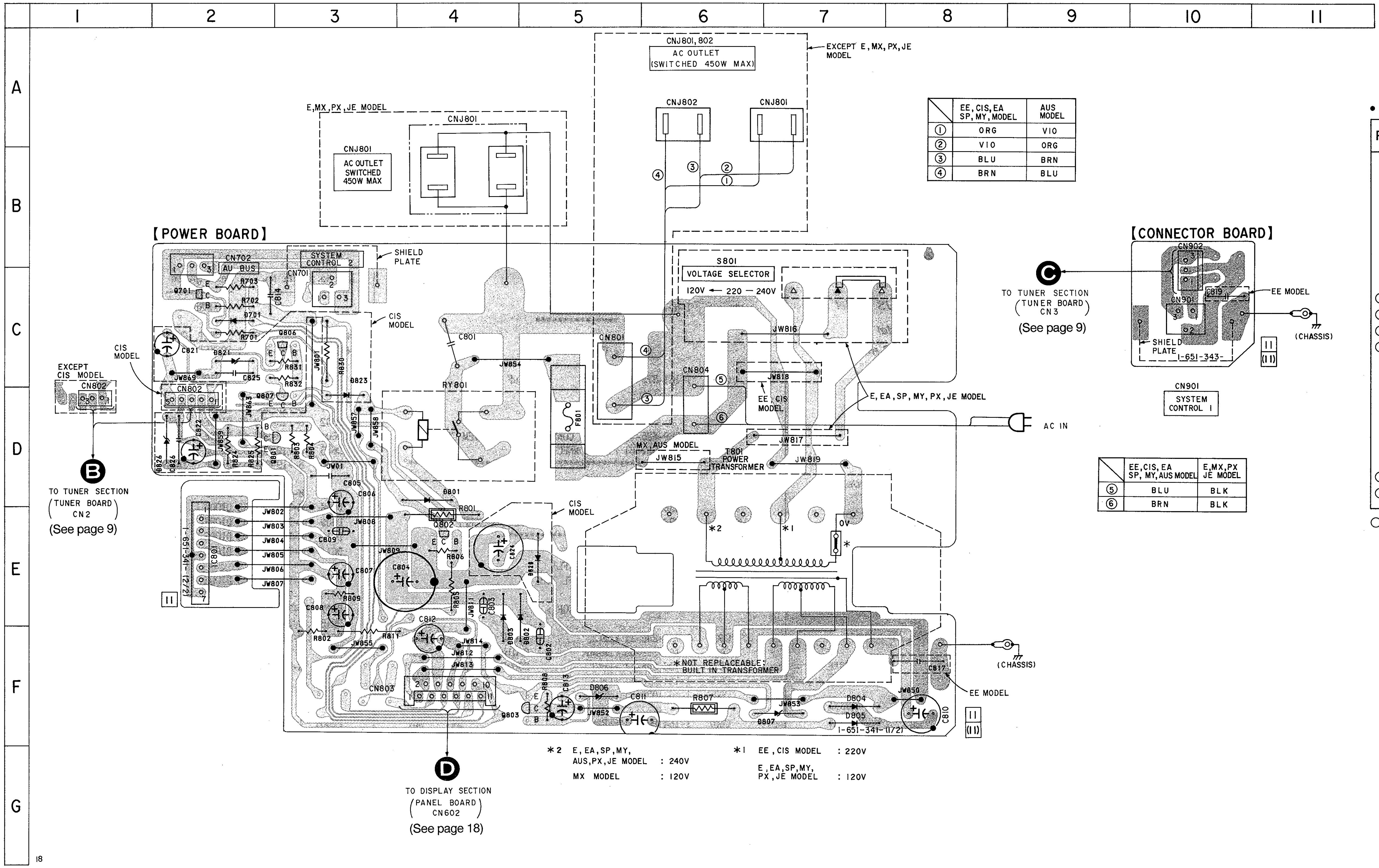
> **Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- B− : B– Line
- Voltage and waveforms are dc with respect to ground under detuned conditions.
  no mark: FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- ⇨ : FM
- Abbreviations

EE	East European	SP	Singapore
CIS	Common Independent States	MY	Malaysia
EA	Saudi Arabia	AUS	Australian
MX	Mexican	JE	Tourist

3-9. PRINTED WIRING BOARDS —POWER SUPPLY Section—

●See page 6 for Circuit Boards Location. ●See page 7 for Semiconductor Lead Layouts.



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
CNJ801, 802
AC OUTLET (SWITCHED 450W MAX)
EXCEPT E, MX, PX, JE MODEL
CNJ802
CNJ801
E, MX, PX, JE MODEL
CNJ801
AC OUTLET SWITCHED 450W MAX
【POWER BOARD】
CN702
AU BUS
SYSTEM CONTROL 2
CN701
SHIELD PLATE
CIS MODEL
EXCEPT CIS MODEL
CN802
S801
VOLTAGE SELECTOR
120V ← 220 — 240V
CN801
CN804
EE, CIS MODEL
RY801
F801
MX, AUS MODEL
T801 POWER TRANSFORMER
E, EA, SP, MY, PX, JE MODEL
AC IN
*NOT REPLACEABLE: BUILT IN TRANSFORMER
0V
(CHASSIS)
EE MODEL
CN803
1-651-341- (12/2)
1-651-341- (11/2)
B
TO TUNER SECTION (TUNER BOARD CN2)
(See page 9)
C
TO TUNER SECTION (TUNER BOARD CN3)
(See page 9)
D
TO DISPLAY SECTION (PANEL BOARD CN602)
(See page 18)
【CONNECTOR BOARD】
CN902
CN901
C819
SHIELD PLATE
1-651-343-
CN901
SYSTEM CONTROL 1
*2 E, EA, SP, MY, AUS, PX, JE MODEL : 240V
MX MODEL : 120V
*1 EE, CIS MODEL : 220V
E, EA, SP, MY, PX, JE MODEL : 120V

	EE, CIS, EA SP, MY, MODEL	AUS MODEL
①	ORG	VIO
②	VIO	ORG
③	BLU	BRN
④	BRN	BLU

	EE, CIS, EA SP, MY, AUS MODEL	E, MX, PX JE MODEL
⑤	BLU	BLK
⑥	BRN	BLK

• Semiconductor Location

Ref. No.	Location
D701	C-2
D801	D-4
D802	E-5
D803	E-4
D804	F-7
D805	F-7
D806	F-5
D807	F-7
○ D820	E-5
○ D821	C-2
○ D823	D-3
○ D826	D-2
IC801	E-2
Q701	C-2
Q801	D-3
Q802	E-4
Q803	F-5
○ Q806	C-3
○ Q807	D-3

○ : CIS MODEL ONLY

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.
- Abbreviations

EE	East European	SP	Singapore
CIS	Common Independent States	MY	Malaysia
EA	Saudi Arabia	AUS	Australian
MX	Mexican	JE	Tourist

SECTION 4
EXPLODED VIEW

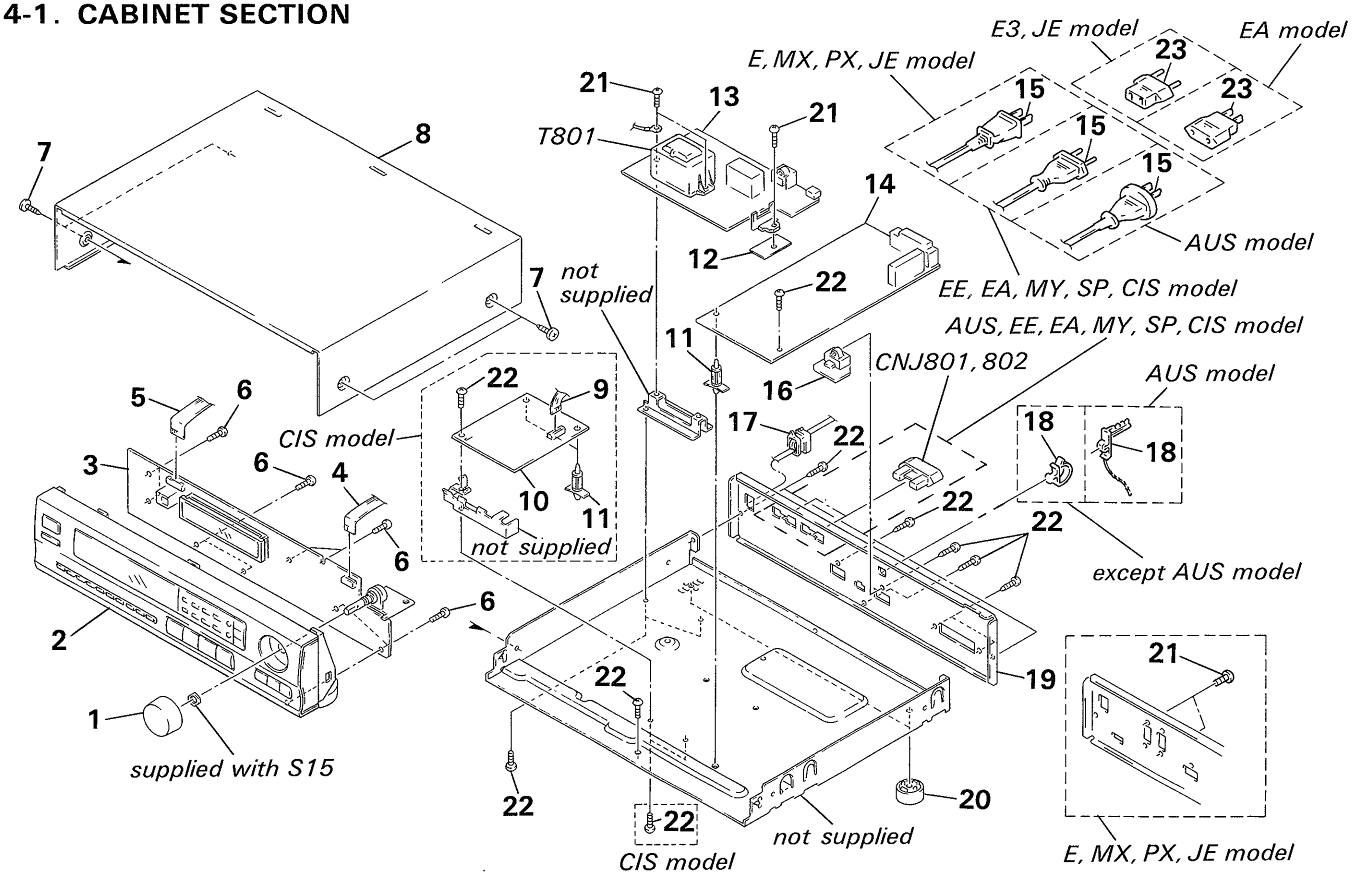
NOTE:
- -xx,-x mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color

- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviations

EE : East European
CIS : Common Independent States
AUS : Australian
EA : Saudi Arabia
MX : Mexican
MY : Malaysia
SP : Singapore
JE : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

4-1. CABINET SECTION


E3, JE model
EA model
E, MX, PX, JE model
23
23
21
13
21
15
15
15
T801
8
7
14
AUS model
12
22
7
not supplied
EE, EA, MY, SP, CIS model
AUS, EE, EA, MY, SP, CIS model
11
CNJ801, 802
AUS model
5
6
22
9
16
CIS model
17
22
18
18
3
6
4
10
11
22
22
not supplied
6
except AUS model
6
2
21
22
19
1
supplied with S15
22
22
20
not supplied
CIS model
E, MX, PX, JE model

Ref.No.	Part No.	Description	Remark
1	4-930-861-01	KNOB	
2	X-4944-628-3	PANEL ASSY (790), FRONT	
∗3	A-4369-476-A	PANEL BOARD, COMPLETE (EE)	
∗3	A-4369-479-A	PANEL BOARD, COMPLETE (CIS)	
∗3	A-4369-486-A	PANEL BOARD, COMPLETE (EXCEPT EE,CIS)	
∗4	1-590-240-11	WIRE, FLAT TYPE (9 CORE)	
5	1-575-666-11	WIRE, FLAT TYPE (11 CORE)	
6	4-951-620-01	SCREW (2.6X8), +BVTP	
7	3-363-099-01	SCREW (CASE 3 TP2)	
∗8	4-939-802-71	CASE	
9	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)	
∗10	A-4369-483-A	POLAR BOARD, COMPLETE (CIS)	
∗11	4-954-051-51	HOLDER, PC BOARD	
∗12	4-937-354-01	SHEET	
∗13	A-4369-475-A	POWER BOARD, COMPLETE (EE)	
∗13	A-4369-480-A	POWER BOARD, COMPLETE (CIS)	
∗13	A-4369-485-A	POWER BOARD, COMPLETE (E,PX,JE)	
∗13	A-4369-487-A	POWER BOARD, COMPLETE (AUS)	
∗13	A-4369-488-A	POWER BOARD, COMPLETE (MX)	
∗13	A-4371-233-A	POWER BOARD, COMPLETE (EA,MY,SP)	
∗14	A-4369-474-A	TUNER BOARD, COMPLETE (EE)	
∗14	A-4369-478-A	TUNER BOARD, COMPLETE (CIS)	
∗14	A-4369-484-A	TUNER BOARD, COMPLETE (EXCEPT EE,CIS)	
⚠15	1-575-651-11	CORD, POWER (EE,EA,MY,SP,CIS)	
⚠15	1-575-653-11	CORD, POWER (E,MX,PX,JE)	

Ref.No.	Part No.	Description	Remark
⚠15	1-690-608-11	CORD, POWER (AUS)	
∗16	1-651-343-11	CONNECTOR BOARD	
∗17	3-703-244-00	BUSHING (2104), CORD (EE,AUS,EA,MY,SP,CIS)	
∗17	3-703-571-11	BUSHING (S) (4516), CORD (E,MX,PX,JE)	
∗18	4-949-235-01	HOOK (EXCEPT AUS)	
∗18	4-956-370-02	BAND, PLUG FIXED (AUS)	
∗19	4-964-089-11	PANEL, BACK (EE)	
∗19	4-964-089-21	PANEL, BACK (E,PX,JE)	
∗19	4-964-089-31	PANEL, BACK (AUS)	
∗19	4-964-089-41	PANEL, BACK (EA,MY,SP)	
∗19	4-964-089-51	PANEL, BACK (MX)	
∗19	4-964-089-61	PANEL, BACK (CIS)	
20	4-931-169-01	FOOT	
21	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
22	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
⚠23	1-569-007-11	ADAPTER, CONVERSION 2P (E3,JE)	
⚠23	1-569-008-11	ADAPTER, CONVERSION 2P (EA)	
⚠CNJ801	1-251-078-11	OUTLET, AC (AUS)	
⚠CNJ801	1-526-794-11	OUTLET, AC (EE,EA,MY,SP,CIS)	
⚠CNJ802	1-251-078-11	OUTLET, AC (AUS)	
⚠CNJ802	1-526-794-11	OUTLET, AC (EE,EA,MY,SP,CIS)	
⚠T801	1-426-806-11	TRANSFORMER, POWER (CIS)	
⚠T801	1-426-807-11	TRANSFORMER, POWER (MX)	
⚠T801	1-426-808-11	TRANSFORMER, POWER(E,AUS,EA,MY,SP,PX,JE)	
⚠T801	1-426-809-11	TRANSFORMER, POWER (EE)	

SECTION 5
ELECTRICAL PARTS LIST

CONNECTOR PANEL

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "∗" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···,
  uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviations
  EE : East European
  CIS : Common Independent States
  AUS : Australian
  EA : Saudi Arabia
  MX : Mexican
  MY : Malaysia
  SP : Singapore
  JE : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description	Remark
∗	1-651-343-11	CONNECTOR BOARD ***************	
		< CAPACITOR >	
C819	1-161-379-00	CERAMIC 0.01uF 20% 25V	(EE)
		< CONNECTOR >	
∗CN901	1-569-625-41	SOCKET, CONNECTOR 3P	(SYSTEM CONTROL 1)
∗CN902	1-564-337-61	PIN, CONNECTOR 3P	
**			
∗	A-4369-476-A	PANEL BOARD, COMPLETE	(EE)
∗	A-4369-479-A	PANEL BOARD, COMPLETE	(CIS)
∗	A-4369-486-A	PANEL BOARD, COMPLETE ********************	(EXCEPT EE,CIS)
∗	4-921-941-01	CUSHION (FL)	
∗	4-923-103-01	HOLDER, FL TUBE	
		< CAPACITOR >	
C601	1-126-245-11	ELECT 330uF 20% 6.3V	
C602	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C603	1-126-245-11	ELECT 330uF 20% 6.3V	
C605	1-124-916-11	ELECT 22uF 20% 63V	
C606	1-164-022-91	CERAMIC 13PF 5% 50V	
C607	1-164-022-91	CERAMIC 13PF 5% 50V	
C608	1-126-163-11	ELECT 4.7uF 20% 50V	
C609	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C610	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C611	1-124-994-11	ELECT 100uF 20% 10V	
C612	1-164-159-11	CERAMIC 0.1uF 50V	
C614	1-126-301-11	ELECT 1uF 20% 50V	
C615	1-126-301-11	ELECT 1uF 20% 50V	
C617	1-164-159-11	CERAMIC 0.1uF 50V	
C618	1-161-494-00	CERAMIC 0.022uF 25V	
C636	1-162-282-31	CERAMIC 100PF 10% 50V	
C637	1-162-282-31	CERAMIC 100PF 10% 50V	
C638	1-162-282-31	CERAMIC 100PF 10% 50V	
C639	1-162-282-31	CERAMIC 100PF 10% 50V	
		< CONNECTOR >	
∗CN601	1-568-852-11	SOCKET, CONNECTOR 9P	
∗CN602	1-568-854-11	SOCKET, CONNECTOR 11P	
		< DIODE >	
D601	8-719-987-63	DIODE 1N4148M	
D602	8-719-200-82	DIODE 11ES2	
D604	8-719-987-63	DIODE 1N4148M	
D605	8-719-987-63	DIODE 1N4148M	(CIS)
D606	8-719-987-63	DIODE 1N4148M	(EXCEPT EE,CIS)
D607	8-719-987-63	DIODE 1N4148M	
D608	8-719-987-63	DIODE 1N4148M	(EE,CIS)
D609	8-719-987-63	DIODE 1N4148M	(EXCEPT EE,CIS)
D611	8-719-987-63	DIODE 1N4148M	
D614	8-719-987-63	DIODE 1N4148M	
D615	8-719-987-63	DIODE 1N4148M	
D616	8-719-987-63	DIODE 1N4148M	
D617	8-719-987-63	DIODE 1N4148M	
D618	8-719-987-63	DIODE 1N4148M	
D619	8-719-987-63	DIODE 1N4148M	
D620	8-719-987-63	DIODE 1N4148M	
		< FLUORESCENT INDICATOR TUBE >	
FL601	1-517-265-21	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC601	8-759-281-45	IC TMP47C1270AN-H228	
IC602	8-749-920-83	IC GP1U52XB	
		< COIL >	
L601	1-410-521-11	INDUCTOR 100uH	
		< RESISTOR >	
R605	1-249-441-11	CARBON 100K 5% 1/4W	
R606	1-249-417-11	CARBON 1K 5% 1/4W	
R607	1-249-417-11	CARBON 1K 5% 1/4W	
R608	1-249-409-11	CARBON 220 5% 1/4W	
R609	1-249-409-11	CARBON 220 5% 1/4W	

Ref.No.	Part No.	Description			Remark
R611	1-249-425-11	CARBON	4.7K	5%	1/4W
R612	1-249-423-11	CARBON	3.3K	5%	1/4W
R613	1-249-441-11	CARBON	100K	5%	1/4W
R614	1-249-441-11	CARBON	100K	5%	1/4W
R615	1-249-441-11	CARBON	100K	5%	1/4W
R619	1-249-429-11	CARBON	10K	5%	1/4W
R620	1-249-429-11	CARBON	10K	5%	1/4W
R621	1-249-429-11	CARBON	10K	5%	1/4W
R622	1-249-429-11	CARBON	10K	5%	1/4W
R623	1-249-429-11	CARBON	10K	5%	1/4W
R625	1-249-429-11	CARBON	10K	5%	1/4W
R626	1-249-429-11	CARBON	10K	5%	1/4W
R627	1-249-425-11	CARBON	4.7K	5%	1/4W
R628	1-249-425-11	CARBON	4.7K	5%	1/4W
R629	1-249-425-11	CARBON	4.7K	5%	1/4W
R630	1-249-425-11	CARBON	4.7K	5%	1/4W
R631	1-249-425-11	CARBON	4.7K	5%	1/4W
R632	1-249-425-11	CARBON	4.7K	5%	1/4W
R633	1-249-425-11	CARBON	4.7K	5%	1/4W
R634	1-249-425-11	CARBON	4.7K	5%	1/4W
R635	1-249-429-11	CARBON	10K	5%	1/4W
R640	1-249-425-11	CARBON	4.7K	5%	1/4W
R641	1-249-417-11	CARBON	1K	5%	1/4W
R642	1-249-417-11	CARBON	1K	5%	1/4W
R643	1-249-417-11	CARBON	1K	5%	1/4W
R644	1-249-429-11	CARBON	10K	5%	1/4W
R645	1-249-421-11	CARBON	2.2K	5%	1/4W
R646	1-249-413-11	CARBON	470	5%	1/4W
R647	1-249-409-11	CARBON	220	5%	1/4W

< SWITCH >

Ref.No.	Part No.	Description	Remark
S15	1-571-955-11	SWITCH, ROTARY (TUNING)	
S601	1-554-303-21	SWITCH, TACTILE (1)	
S602	1-554-303-21	SWITCH, TACTILE (2)	
S603	1-554-303-21	SWITCH, TACTILE (3)	
S604	1-554-303-21	SWITCH, TACTILE (4)	
S605	1-554-303-21	SWITCH, TACTILE (5)	
S606	1-554-303-21	SWITCH, TACTILE (6)	
S607	1-554-303-21	SWITCH, TACTILE (7)	
S608	1-554-303-21	SWITCH, TACTILE (8)	
S609	1-554-303-21	SWITCH, TACTILE (9)	
S610	1-554-303-21	SWITCH, TACTILE (0)	
S611	1-554-303-21	SWITCH, TACTILE (+)	
S612	1-554-303-21	SWITCH, TACTILE (-)	
S614	1-554-303-21	SWITCH, TACTILE (BAND)	
S615	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S616	1-554-303-21	SWITCH, TACTILE (ONCE)	
S617	1-554-303-21	SWITCH, TACTILE (DAILY)	
S618	1-554-303-21	SWITCH, TACTILE (REC)	
S619	1-554-303-21	SWITCH, TACTILE (CLOCK SET)	
S620	1-554-303-21	SWITCH, TACTILE (SLEEP)	
S621	1-554-303-21	SWITCH, TACTILE (TIMER SET)	
S622	1-554-303-21	SWITCH, TACTILE (ST/MONO)	
S623	1-554-303-21	SWITCH, TACTILE (CHARACTER)	
S624	1-554-303-21	SWITCH, TACTILE (SYSTEM POWER)	
S625	1-554-303-21	SWITCH, TACTILE (DISPLAY)	
S626	1-554-303-21	SWITCH, TACTILE (NEXT)	
S627	1-554-303-21	SWITCH, TACTILE (SHIFT A)	
S628	1-554-303-21	SWITCH, TACTILE (SHIFT B)	
S629	1-554-303-21	SWITCH, TACTILE (SHIFT C)	
S630	1-554-303-21	SWITCH, TACTILE (MEMORY SCAN)	
S631	1-554-303-21	SWITCH, TACTILE (TUNING MODE)	

< VIBRATOR >

Ref.No.	Part No.	Description	Remark
X601	1-579-564-11	VIBRATOR, CRYSTAL (8.388608MHz)	

****

* A-4369-483-A POLAR BOARD, COMPLETE (CIS)
****

< CAPACITOR >

Ref.No.	Part No.	Description			Remark
C1701	1-162-294-31	CERAMIC	0.001uF	10%	50V
C1702	1-130-014-00	FILM	470PF	5%	50V
C1703	1-124-902-00	ELECT	0.47uF	20%	50V
C1704	1-124-902-00	ELECT	0.47uF	20%	50V
C1705	1-164-098-11	CERAMIC	0.047uF		12V
C1706	1-124-903-11	ELECT	1uF	20%	50V
C1707	1-162-288-31	CERAMIC	330PF	10%	50V
C1710	1-137-364-11	FILM	0.001uF	5%	50V
C1711	1-137-364-11	FILM	0.001uF	5%	50V
C1712	1-130-736-11	FILM	0.01uF	5%	50V
C1713	1-130-736-11	FILM	0.01uF	5%	50V
C1714	1-124-903-11	ELECT	1uF	20%	50V
C1715	1-124-903-11	ELECT	1uF	20%	50V
C1716	1-124-903-11	ELECT	1uF	20%	50V
C1719	1-124-477-11	ELECT	47uF	20%	25V
C1720	1-161-379-00	CERAMIC	0.01uF	20%	25V
C1723	1-161-379-00	CERAMIC	0.01uF	20%	25V
C1724	1-161-379-00	CERAMIC	0.01uF	20%	25V
C1725	1-124-477-11	ELECT	47uF	20%	25V
C1726	1-124-903-11	ELECT	1uF	20%	50V
C1727	1-124-903-11	ELECT	1uF	20%	50V
C1728	1-104-792-51	ELECT	33uF	20%	16V

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
*CN1701	1-568-832-11	SOCKET, CONNECTOR 13P	

POLAR

Ref.No.	Part No.	Description	Remark
		< TRIMMER >	
CT1701	1-141-260-00	TRIMMER, CERAMIC 50PF	
		< DIODE >	
D1701	8-719-987-63	DIODE 1N4148M	
D1703	8-719-987-63	DIODE 1N4148M	
D1704	8-719-987-63	DIODE 1N4148M	
D1705	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC1701	8-759-063-04	IC IR3R42	
IC1703	8-759-140-53	IC uPD4053BC	
		< COIL >	
L1701	1-409-497-11	COIL (FILTER) 5.19mH	
		< TRANSISTOR >	
Q1701	8-729-900-61	TRANSISTOR DTA114ES	
Q1702	8-729-900-80	TRANSISTOR DTC114ES	
Q1704	8-729-900-80	TRANSISTOR DTC114ES	
		< RESISTOR >	
R1701	1-249-433-11	CARBON 22K 5% 1/4W	
R1702	1-249-435-11	CARBON 33K 5% 1/4W	
R1703	1-249-427-11	CARBON 6.8K 5% 1/4W	
R1704	1-247-858-11	CARBON 13K 5% 1/4W	
R1705	1-249-417-11	CARBON 1K 5% 1/4W	
R1706	1-249-417-11	CARBON 1K 5% 1/4W	
R1707	1-249-441-11	CARBON 100K 5% 1/4W	
R1708	1-249-440-11	CARBON 82K 5% 1/4W	
R1709	1-249-437-11	CARBON 47K 5% 1/4W	
R1710	1-249-429-11	CARBON 10K 5% 1/4W	
R1711	1-249-429-11	CARBON 10K 5% 1/4W	
R1714	1-249-426-11	CARBON 5.6K 5% 1/4W	
R1715	1-249-426-11	CARBON 5.6K 5% 1/4W	
R1716	1-249-441-11	CARBON 100K 5% 1/4W	
R1717	1-249-441-11	CARBON 100K 5% 1/4W	
R1718	1-249-429-11	CARBON 10K 5% 1/4W	
R1719	1-249-429-11	CARBON 10K 5% 1/4W	
R1721	1-249-434-11	CARBON 27K 5% 1/4W	
R1722	1-249-441-11	CARBON 100K 5% 1/4W	
		< VARIABLE RESISTOR >	
RV1701	1-238-600-11	RES, ADJ, CARBON 10K	
RV1702	1-238-599-11	RES, ADJ, CARBON 4.7K	
		< TEST PIN >	
*TP1701	1-560-061-00	PIN, CONNECTOR 3P	
*TP1702	1-560-061-00	PIN, CONNECTOR 3P	

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POWER

Ref.No.	Part No.	Description	Remark
*	A-4369-475-A	POWER BOARD, COMPLETE	(EE)
*	A-4369-480-A	POWER BOARD, COMPLETE	(CIS)
*	A-4369-485-A	POWER BOARD, COMPLETE	(E,PX,JE)
*	A-4369-487-A	POWER BOARD, COMPLETE	(AUS)
*	A-4369-488-A	POWER BOARD, COMPLETE	(MX)
*	A-4371-233-A	POWER BOARD, COMPLETE	(EA,SP,MY)
		********************	
		< CAPACITOR >	
⚠C801	1-161-744-51	CERAMIC 0.01uF 400V	
C802	1-101-004-00	CERAMIC 0.01uF 50V	
C803	1-101-004-00	CERAMIC 0.01uF 50V	
C804	1-126-105-11	ELECT 1000uF 20% 35V	
C805	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C806	1-126-022-11	ELECT 47uF 20% 16V	
C807	1-126-022-11	ELECT 47uF 20% 16V	
C808	1-126-163-11	ELECT 4.7uF 20% 50V	
C809	1-101-004-00	CERAMIC 0.01uF 50V	
C810	1-124-918-11	ELECT 47uF 20% 63V	
C811	1-124-572-11	ELECT 100uF 20% 63V	(EXCEPT EE,CIS)
C811	1-124-918-11	ELECT 47uF 20% 63V	(EE,CIS)
C812	1-124-910-11	ELECT 47uF 20% 50V	
C813	1-126-059-11	ELECT 10uF 20% 50V	
C814	1-161-494-00	CERAMIC 0.022uF 25V	
C817	1-161-379-00	CERAMIC 0.01uF 20% 25V	(EE)
C821	1-126-024-11	ELECT 220uF 20% 16V	(CIS)
C822	1-126-024-11	ELECT 220uF 20% 16V	(CIS)
C824	1-124-918-11	ELECT 47uF 20% 63V	(CIS)
C825	1-161-379-00	CERAMIC 0.01uF 20% 25V	(CIS)
C826	1-161-379-00	CERAMIC 0.01uF 20% 25V	(CIS)
		< CONNECTOR >	
*CN701	1-569-625-11	SOCKET, CONNECTOR 3P	(SYSTEM CONTROL 2)
*CN702	1-565-561-11	PIN, CONNECTOR 3P	(AU BUS)
CN801	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	(EE,CIS,EA,SP,MY,AUS)
*CN802	1-564-337-00	PIN, CONNECTOR 3P	(EXCEPT CIS)
*CN802	1-564-339-00	PIN, CONNECTOR 5P	(CIS)
*CN803	1-568-830-11	SOCKET, CONNECTOR 11P	
CN804	1-564-321-00	PIN, CONNECTOR 2P	
		< JACK >	
⚠CNJ801	1-540-041-11	OUTLET, AC (NONPOLAR) (2P) (AC OUTLET)	(E,MX,PX,JE)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

< DIODE >

Ref.No.	Part No.	Description	Remark
D701	8-719-987-63	DIODE 1N4148M	
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-200-82	DIODE 11ES2	
D803	8-719-200-82	DIODE 11ES2	
D804	8-719-200-82	DIODE 11ES2	
D805	8-719-200-82	DIODE 11ES2	
D806	8-719-934-22	DIODE HZS30-2L	
D807	8-719-014-66	DIODE UZP-5.6B	
D820	8-719-200-82	DIODE 11ES2 (CIS)	
D821	8-719-000-93	DIODE UZL-7H1 (CIS)	
D823	8-719-987-63	DIODE 1N4148M (CIS)	
D826	8-719-000-93	DIODE UZL-7H1 (CIS)	

< FUSE >

Ref.No.	Part No.	Description	Remark
⚠F801	1-532-286-00	FUSE (T2.5A/250V) (CIS, AUS)	
⚠F801	1-532-299-00	FUSE (T5A/250V) (EXCEPT EE, CIS, AUS)	
⚠F801	1-576-229-31	FUSE (H.B.C.) (T2.5A/250V) (EE)	

< FUSE HOLDER >

Ref.No.	Part No.	Description	Remark
FH801	1-533-293-11	FUSE HOLDER	
FH802	1-533-293-11	FUSE HOLDER	

< IC >

Ref.No.	Part No.	Description	Remark
IC801	8-759-820-09	IC LA5667	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q801	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q803	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q806	8-729-620-05	TRANSISTOR 2SC2603-EF (CIS)	
Q807	8-729-900-63	TRANSISTOR DTA124ES (CIS)	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R701	1-249-425-11	CARBON 4.7K 5% 1/4W	
R702	1-249-429-11	CARBON 10K 5% 1/4W	
R703	1-249-393-11	CARBON 10 5% 1/4W	
⚠R801	1-215-887-00	METAL OXIDE 150 5% 2W	F
R802	1-249-429-11	CARBON 10K 5% 1/4W	
R803	1-249-425-11	CARBON 4.7K 5% 1/4W	
R804	1-249-425-11	CARBON 4.7K 5% 1/4W	
R805	1-249-417-11	CARBON 1K 5% 1/4W	
R806	1-249-437-11	CARBON 47K 5% 1/4W	
⚠R807	1-247-702-11	CARBON 150 5% 1/4W	F
R808	1-249-425-11	CARBON 4.7K 5% 1/4W	
R809	1-249-437-11	CARBON 47K 5% 1/4W	
R811	1-249-417-11	CARBON 1K 5% 1/4W	
R824	1-249-411-11	CARBON 330 5% 1/4W (CIS)	
R825	1-249-411-11	CARBON 330 5% 1/4W (CIS)	
R830	1-247-756-11	CARBON 2.2K 5% 1/2W (CIS)	
R831	1-249-429-11	CARBON 10K 5% 1/4W (CIS)	
R832	1-249-429-11	CARBON 10K 5% 1/4W (CIS)	

< RELAY >

Ref.No.	Part No.	Description	Remark
RY801	1-515-701-21	RELAY (POWER)	

< SWITCH >

Ref.No.	Part No.	Description	Remark
⚠S801	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E, EA, SP, MY, PX, JE)	

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Ref.No.	Part No.	Description	Remark
*	A-4369-474-A	TUNER BOARD, COMPLETE (EE)	
*	A-4369-478-A	TUNER BOARD, COMPLETE (CIS)	
*	A-4369-484-A	TUNER BOARD, COMPLETE (EXCEPT EE, CIS)	

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< CAPACITOR >

Ref.No.	Part No.	Description	Remark
C1	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2	1-124-477-11	ELECT 47uF 20% 25V	
C3	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C4	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C5	1-164-159-11	CERAMIC 0.1uF 50V	
C6	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C7	1-124-120-11	ELECT 220uF 20% 25V	
C8	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C9	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C10	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C11	1-124-907-11	ELECT 10uF 20% 50V	
C12	1-124-902-00	ELECT 0.47uF 20% 50V	
C13	1-124-903-11	ELECT 1uF 20% 50V	
C14	1-124-903-11	ELECT 1uF 20% 50V	
C15	1-124-907-11	ELECT 10uF 20% 50V	
C16	1-124-907-11	ELECT 10uF 20% 50V	
C17	1-124-907-11	ELECT 10uF 20% 50V	
C18	1-124-907-11	ELECT 10uF 20% 50V	
C19	1-136-158-00	FILM 0.027uF 5% 50V	
C20	1-136-158-00	FILM 0.027uF 5% 50V	
C21	1-161-046-00	CERAMIC 0.0039uF 10% 25V	
C22	1-161-046-00	CERAMIC 0.0039uF 10% 25V	
C23	1-124-903-11	ELECT 1uF 20% 50V	
C24	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C25	1-161-377-00	CERAMIC 0.0047uF 30% 16V	
C26	1-124-477-11	ELECT 47uF 20% 25V	
C27	1-126-962-11	ELECT 3.3uF 20% 50V	
C28	1-161-494-00	CERAMIC 0.022uF 25V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

TUNER

Ref.No.	Part No.	Description	Remark
C29	1-124-907-11	ELECT 10uF 20% 50V	
C30	1-161-494-00	CERAMIC 0.022uF 25V	
C31	1-101-005-00	CERAMIC 22000PF 50V	
C32	1-162-196-31	CERAMIC 5.6PF 10% 50V	(EE,CIS)
C32	1-162-198-31	CERAMIC 8.2PF 10% 50V	(EXCEPT EE,CIS)
C33	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C34	1-164-159-11	CERAMIC 0.1uF 50V	(EE,CIS)
C37	1-161-374-11	CERAMIC 0.0015uF 20% 50V	(EE,CIS)
C38	1-102-120-00	CERAMIC 0.0018uF 10% 50V	(EE,CIS)
C39	1-101-005-00	CERAMIC 22000PF 50V	(EE,CIS)
C45	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C46	1-162-294-11	CERAMIC 0.001uF 10% 50V	
C47	1-161-494-00	CERAMIC 0.022uF 30% 25V	
C51	1-102-961-00	CERAMIC 27PF 5% 50V	
C52	1-102-961-00	CERAMIC 27PF 5% 50V	
C53	1-124-477-11	ELECT 47uF 20% 25V	
C54	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C55	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C56	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C57	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C58	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C61	1-124-925-11	ELECT 2.2uF 20% 100V	
C62	1-124-463-00	ELECT 0.1uF 20% 50V	
C63	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C64	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C65	1-124-477-11	ELECT 47uF 20% 25V	
C67	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C71	1-136-173-00	FILM 0.47uF 5% 50V	(EE,CIS)
C72	1-161-494-00	CERAMIC 0.022uF 25V	(EE,CIS)
C73	1-124-463-00	ELECT 0.1uF 20% 50V	(EE,CIS)
C95	1-124-903-11	ELECT 1uF 20% 50V	(CIS)
C96	1-124-903-11	ELECT 1uF 20% 50V	(CIS)

< FILTER >

Ref.No.	Part No.	Description	Remark
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	
CF4	1-527-981-00	FILTER, CERAMIC	
CF5	1-577-075-11	OSCILLATOR, CERAMIC	
CF6	1-760-220-21	FILTER, CERAMIC	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
*CN1	1-568-828-11	SOCKET, CONNECTOR 9P	
*CN2	1-564-337-00	PIN, CONNECTOR 3P	(EXCEPT CIS)
*CN2	1-564-339-00	PIN, CONNECTOR 5P	(CIS)
*CN3	1-564-337-61	PIN, CONNECTOR 3P	
*CN4	1-568-832-11	SOCKET, CONNECTOR 13P	(CIS)

< DIODE >

Ref.No.	Part No.	Description	Remark
D1	8-719-987-63	DIODE 1N4148M	
D2	8-719-987-63	DIODE 1N4148M	(CIS)
D3	8-719-987-63	DIODE 1N4148M	(CIS)
D4	8-719-015-04	DIODE UZP-8.2BC	
D5	8-719-001-18	DIODE UZL-9M3	

< FRONT END >

Ref.No.	Part No.	Description	Remark
FE1	1-693-090-41	FRONT-END (FM) (2 GANG)	(EXCEPT EE,CIS)
FE1	1-693-244-11	FRONT-END (FM)(3 GANG)	(EE,CIS)
FE2	1-239-260-11	ENCAPSULATED COMPONENT (AM)	(EXCEPT EE,CIS)
FE2	1-239-876-11	ENCAPSULATED COMPONENT (MW)	(EE,CIS)
FE3	1-236-463-11	ENCAPSULATED COMPONENT (LW)	(EE,CIS)

< IC >

Ref.No.	Part No.	Description	Remark
IC1	8-759-176-03	IC LA1835	
IC51	8-759-175-87	IC LC7218-ST	

< IFT >

Ref.No.	Part No.	Description	Remark
IFT1	1-409-636-11	TRANSFORMER, IF (CERAMIC FILTER)	

< COIL >

Ref.No.	Part No.	Description	Remark
L1	1-410-688-31	INDUCTOR 1.5mH	(EXCEPT EE,CIS)
L1	1-407-500-00	INDUCTOR 4.7mH	(EE,CIS)
L2	1-410-525-11	INDUCTOR 220uH	(EE,CIS)

< LOW PASS FILTER >

Ref.No.	Part No.	Description	Remark
LPF1	1-239-597-11	FILTER, LOW PASS	
LPF2	1-239-597-11	FILTER, LOW PASS	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q1	8-729-230-XX	TRANSISTOR 2SC2669-OY	
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE	(EE,CIS)
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE	(EE,CIS)
Q5	8-729-900-80	TRANSISTOR DTC114ES	(EE,CIS)
Q6	8-729-900-80	TRANSISTOR DTC114ES	(EE,CIS)
Q7	8-729-900-80	TRANSISTOR DTC114ES	(EE,CIS)
Q8	8-729-900-80	TRANSISTOR DTC114ES	(EE,CIS)
Q55	8-729-900-61	TRANSISTOR DTA114ES	
Q61	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q62	8-729-201-84	TRANSISTOR 2SC3112-B	
Q71	8-729-202-67	TRANSISTOR 2SK246-GR3	(EE,CIS)
Q72	8-729-201-84	TRANSISTOR 2SC3112-B	(EE,CIS)

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R1	1-249-411-11	CARBON 330 5% 1/4W	
R2	1-249-411-11	CARBON 330 5% 1/4W	

Ref.No.	Part No.	Description				Remark
R3	1-249-409-11	CARBON	220	5%	1/4W	
R4	1-249-410-11	CARBON	270	5%	1/4W	
R5	1-247-891-00	CARBON	330K	5%	1/4W	
R6	1-249-411-11	CARBON	330	5%	1/4W	
⚠R9	1-249-405-11	CARBON	100	5%	1/4W	F
R10	1-249-437-11	CARBON	47K	5%	1/4W	
R12	1-249-429-11	CARBON	10K	5%	1/4W	
R13	1-249-442-11	CARBON	510	5%	1/4W	
⚠R14	1-247-738-11	CARBON	82	5%	1/2W	F
R16	1-249-429-11	CARBON	10K	5%	1/4W	
R17	1-247-842-11	CARBON	3K	5%	1/4W	
R18	1-249-429-11	CARBON	10K	5%	1/4W	
R19	1-249-441-11	CARBON	100K	5%	1/4W	
R21	1-249-441-11	CARBON	100K	5%	1/4W	
R22	1-249-437-11	CARBON	47K	5%	1/4W	
R23	1-249-399-11	CARBON	33	5%	1/4W	
R24	1-249-425-11	CARBON	4.7K	5%	1/4W	(EE,CIS)
R25	1-249-429-11	CARBON	10K	5%	1/4W	(EE,CIS)
R26	1-249-429-11	CARBON	10K	5%	1/4W	(EE,CIS)
R27	1-249-429-11	CARBON	10K	5%	1/4W	(EE)
R30	1-249-429-11	CARBON	10K	5%	1/4W	(EE,CIS)
R31	1-249-429-11	CARBON	10K	5%	1/4W	(EE,CIS)
R32	1-249-433-11	CARBON	22K	5%	1/4W	(EE,CIS)
R33	1-247-903-00	CARBON	1M	5%	1/4W	(EE,CIS)
R34	1-249-437-11	CARBON	47K	5%	1/4W	(EE,CIS)
R35	1-249-423-11	CARBON	3.3K	5%	1/4W	
R36	1-249-423-11	CARBON	3.3K	5%	1/4W	
R39	1-249-429-11	CARBON	10K	5%	1/4W	
R41	1-249-410-11	CARBON	270	5%	1/4W	
R45	1-249-426-11	CARBON	5.6K	5%	1/4W	
R46	1-249-426-11	CARBON	5.6K	5%	1/4W	
R49	1-249-423-11	CARBON	3.3K	5%	1/4W	
⚠R50	1-249-401-11	CARBON	47	5%	1/4W	F
R51	1-249-417-11	CARBON	1K	5%	1/4W	
R52	1-249-417-11	CARBON	1K	5%	1/4W	
R53	1-249-417-11	CARBON	1K	5%	1/4W	
R54	1-249-417-11	CARBON	1K	5%	1/4W	
R56	1-249-425-11	CARBON	4.7K	5%	1/4W	
R57	1-249-417-11	CARBON	1K	5%	1/4W	
R58	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R60	1-249-405-11	CARBON	100	5%	1/4W	F
R61	1-249-423-11	CARBON	3.3K	5%	1/4W	
R62	1-249-425-11	CARBON	4.7K	5%	1/4W	
R63	1-249-414-11	CARBON	560	5%	1/4W	
R64	1-249-417-11	CARBON	1K	5%	1/4W	
R65	1-249-410-11	CARBON	270	5%	1/4W	
R66	1-249-421-11	CARBON	2.2K	5%	1/4W	
R67	1-249-425-11	CARBON	4.7K	5%	1/4W	
R68	1-249-425-11	CARBON	4.7K	5%	1/4W	
R69	1-247-807-31	CARBON	100	5%	1/4W	
R71	1-249-423-11	CARBON	3.3K	5%	1/4W	(EE,CIS)
R72	1-249-433-11	CARBON	22K	5%	1/4W	(EE,CIS)
R73	1-249-414-11	CARBON	560	5%	1/4W	(EE,CIS)
R74	1-249-417-11	CARBON	1K	5%	1/4W	(EE,CIS)
R75	1-249-410-11	CARBON	270	5%	1/4W	(EE,CIS)
R76	1-249-421-11	CARBON	2.2K	5%	1/4W	(EE,CIS)
R77	1-249-425-11	CARBON	4.7K	5%	1/4W	(EE,CIS)
R78	1-247-807-31	CARBON	100	5%	1/4W	(EE,CIS)
R79	1-249-429-11	CARBON	10K	5%	1/4W	(CIS)

< VARIABLE RESISTOR >

RV1	1-238-601-11	RES, ADJ, CARBON 22K
RV2	1-238-600-11	RES, ADJ, CARBON 10K

< TERMINAL BOARD >

TM1	1-537-264-11	TERMINAL BOARD (ANTENNA) (EXCEPT EE,CIS)
*TM1	1-537-288-11	TERMINAL BOARD (PAL) (ANTENNA) (EE,CIS)

< VIBRATOR >

XT51	1-577-126-21	VIBRATOR, CRYSTAL (7.2MHz)

****

MISCELLANEOUS
****

*4	1-590-240-11	WIRE, FLAT TYPE (9 CORE)
5	1-575-666-11	WIRE, FLAT TYPE (11 CORE)
9	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)
⚠15	1-575-651-11	CORD, POWER (EE,EA,MY,SP,CIS)
⚠15	1-575-653-11	CORD, POWER (E,MX,PX,JE)
⚠15	1-690-608-11	CORD, POWER (AUS)
⚠23	1-569-007-11	ADAPTER, CONVERSION 2P (E3,JE)
⚠23	1-569-008-11	ADAPTER, CONVERSION 2P (EA)
⚠CNJ801	1-251-078-11	OUTLET, AC (AUS)
⚠CNJ801	1-526-794-11	OUTLET, AC (EE,EA,MY,SP,CIS)
⚠CNJ802	1-251-078-11	OUTLET, AC (AUS)
⚠CNJ802	1-526-794-11	OUTLET, AC (EE,EA,MY,SP,CIS)
⚠T801	1-426-806-11	TRANSFORMER, POWER (CIS)
⚠T801	1-426-807-11	TRANSFORMER, POWER (MX)
⚠T801	1-426-808-11	TRANSFORMER, POWER(E,AUS,EA,MY,SP,PX,JE)
⚠T801	1-426-809-11	TRANSFORMER, POWER (EE)

****

ACCESSORIES & PACKING MATERIALS
****

	4-920-940-01	SHEET (A), PROTECTION
*	4-929-563-01	CUSHION

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Consumer A&V Products Company
Home A&V Division

9-959-432-12

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Published by Home A&V Div. Quality Engineering Dept.

ST-A790

SONY

SERVICE MANUAL

E Model
East European Model
CIS Model
Australian Model
PX Model
Tourist Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. CORRECTION
2. PARTS SUPPLY CLASSIFICATION CHANGED
3. PARTS & BOARD CHANGED

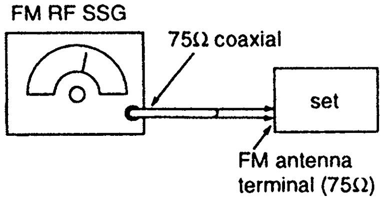
(ECN-TA401704)

1. CORRECTION
ELECTRICAL ADJUSTMENTS CORRECTION

- Correct your service manual as shown below.

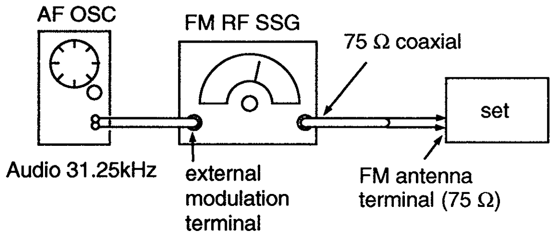
FM Polar Adjustment (CIS model only)

Connection 1 :


FM RF SSG
75Ω coaxial
set
FM antenna
terminal (75Ω)

Carrier frequency : 69 MHz
Output level : 1 mV (60 dBμ) (at 75 Ω open)
Modulation : AUDIO 1 kHz, 10 kHz deviation

Connection 2 :


AF OSC
FM RF SSG
75 Ω coaxial
set
Audio 31.25kHz
external
modulation
terminal
FM antenna
terminal (75 Ω)

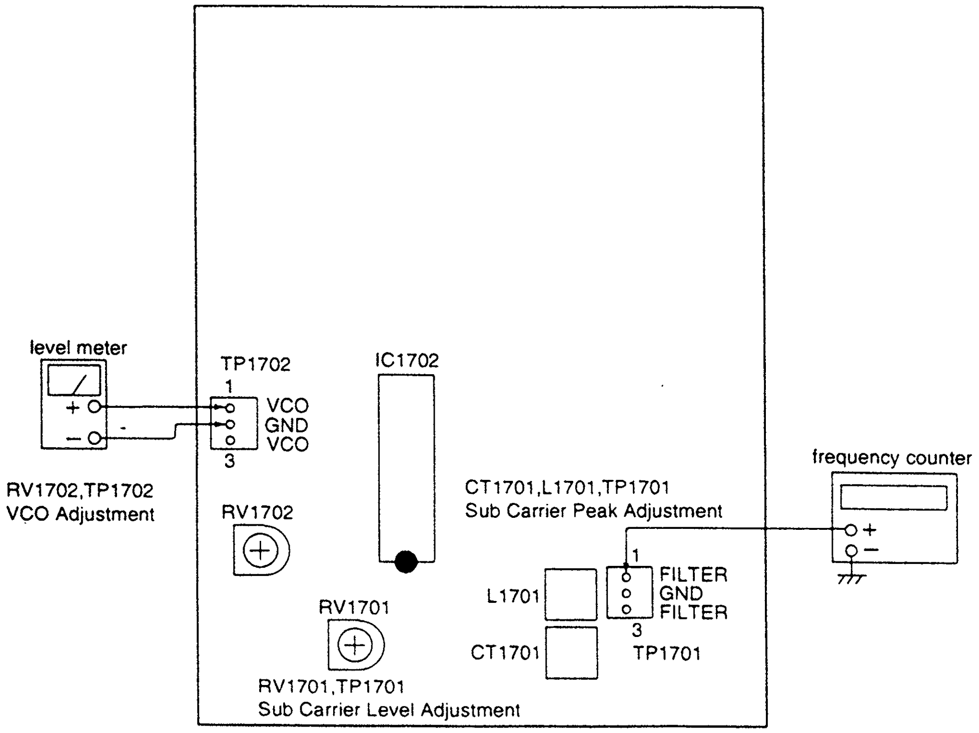
Carrier frequency : 69 MHz
Output level : 1 mV (60 dBμ) (at 75 Ω open)
Modulation : AUDIO 31.25 kHz, 10 kHz deviation
(EXTERNAL MODULATION)

Procedure :

1. Set the modulation of FM RF SSG to AUDIO 1 kHz, 10 kHz deviation according to "Connection 1".
2. Tune the set to 69 MHz.
3. Adjust the RV1702 so that the reading of frequency counter connected to TP1702 becomes within 31.25 kHz ± 0.05 kHz. (VCO adjustment)
4. Then record the reading of the level meter connected to TP1701.
5. Set the modulation of FM RF SSG to AUDIO 31.25 kHz, 10 kHz deviation according to "Connection 2".
6. Tune the set to 69 MHz.
7. Set the CT1701 to be mechanical center.
8. Adjust the L1701 so that the reading of the level meter connected to TP1701 becomes maximum.
   Then adjust the CT1701 so that the reading of the level meter connected to TP1701 becomes maximum. (SUB CARRIER PEAK Adjustment)
9. Adjust the RV1701 so that the level at the moment becomes 14 dB higher value than the level recorded in step 4. (SUB CARRIER LEVEL Adjustment)

Adjustment Location :

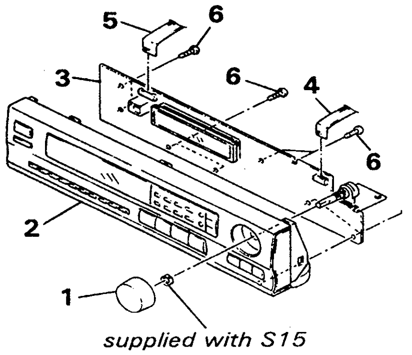
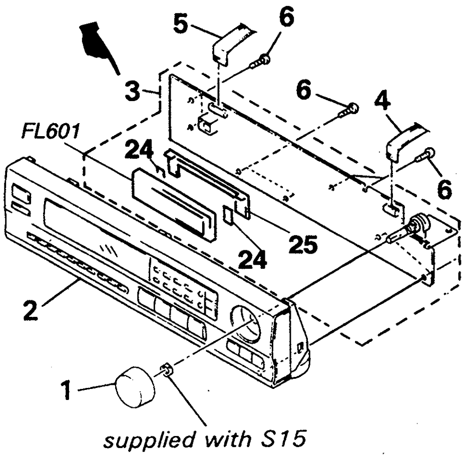
[POLAR BOARD] — Component Side—


level meter
+
−
-
TP1702
1
VCO
GND
VCO
3
IC1702
RV1702,TP1702
VCO Adjustment
RV1702
RV1701
RV1701,TP1701
Sub Carrier Level Adjustment
CT1701,L1701,TP1701
Sub Carrier Peak Adjustment
L1701
CT1701
1
FILTER
GND
FILTER
3
TP1701
frequency counter
+
−

- Abbreviation

EE	: East European model		
EA	: Saudi Arabia model	MY	: Malaysia model
MX	: Mexican model	AUS:	Australian model
SP	: Singapore model	JE	: Tourist model

☛ : indicates corrected portion.

Page	INCORRECT				CORRECT			
23	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
			*** EXPLODED VIEWS ***				*** EXPLODED VIEWS ***	
					☛  5 6 3 6 4 FL601 24 6 25 24 2 1 supplied with S15			
	* 14	A-4369-485-A	TUNER BOARD, COMPLETE (EXCEPT EE, CIS)		* 14	A-4369-485-A	TUNER BOARD, COMPLETE (EXCEPT EE, AUS, CIS)	
					* 14	A-4371-808-A	TUNER BOARD, COMPLETE (AUS)	
					24	4-921-941-02	CUSHION (FL)	
					25	4-923-103-02	HOLDER, FL TUBE	
					FL601	1-517-265-22	INDICATOR TUBE, FLUORESCENT	
29			*** MISCELLANEOUS ***				*** MISCELLANEOUS ***	
					FL601	1-517-265-22	INDICATOR TUBE, FLUORESCENT	

2. PARTS SUPPLY CLASSIFICATION CHANGED

Revise your service manual as shown below due to parts supply classification has been changed.

Page	CURRENT				REVISED			
26	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
			*** ELECTRICAL PARTS LIST ***				*** ELECTRICAL PARTS LIST ***	
			*** POWER BOARD ***				*** POWER BOARD ***	
	⚠F801	1-532-286-00	FUSE (T2.5A/250V) (AUS, CIS)		⚠F801	1-532-464-51	FUSE TIME-LAG (2.5A/250V) (AUS, CIS)	
	⚠F801	1-532-299-00	FUSE (T5A/250V) (EXCEPT EE, CIS, AUS)		⚠F801	1-532-505-51	FUSE TIME-LAG (5A/250V) (EXCEPT EE, CIS, AUS)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

3. PARTS & BOARD CHANGED

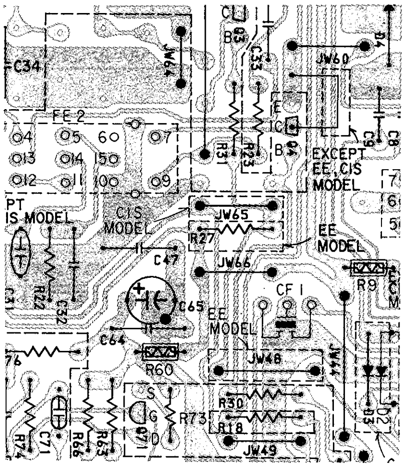
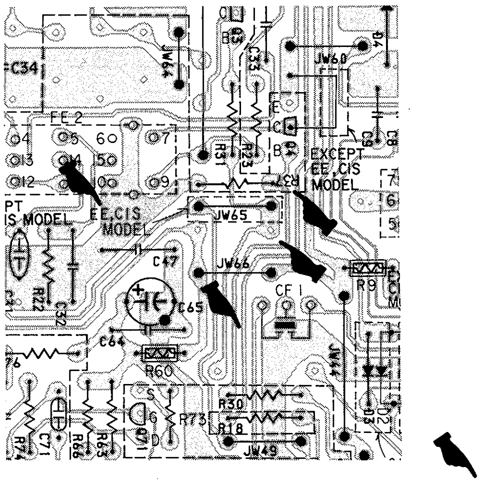
Page	FORMER				NEW			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
25			*** ELECTRICAL PARTS LIST ***				*** ELECTRICAL PARTS LIST ***	
			*** POLAR BOARD ***				*** POLAR BOARD ***	
	Q1701	8-729-900-61	TRANSISTOR DTA114ES		Q1701	8-729-422-57	TRANSISTOR UN4111	
26			*** POWER BOARD ***				*** POWER BOARD ***	
	⚠C801	1-161-744-51	CERAMIC 0.01uF 400V		⚠C801	1-113-916-11	CERAMIC 0.01uF 20% 250V	
	C817	1-161-379-00	CERAMIC 0.01uF 20% 25V	(EE)	C817	1-162-306-11	CERAMIC 0.01uF 30% 16V	(AUS, EE)
27			*** TUNER BOARD ***				*** TUNER BOARD ***	
		A-4369-484-A	TUNER BOARD, COMPLETE (EXCEPT EE, CIS)			A-4371-807-A	TUNER BOARD, COMPLETE (AUS)	
	C46	1-162-294-11	CERAMIC 0.001uF 10% 50V		C46	1-162-294-31	CERAMIC 0.001uF 10% 50V	(AUS, EE, CIS)
	C47	1-161-494-00	CERAMIC 0.022uF 30% 25V		C47	1-161-494-00	CERAMIC 0.022uF 25V	(AUS, EE, CIS)
	Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE	(EE, CIS)	Q3	8-729-110-69	TRANSISTOR 2SA1409-K	(EE, CIS)
	Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE	(EE, CIS)	Q4	8-729-110-69	TRANSISTOR 2SA1409-K	(EE, CIS)
	Q55	8-729-900-61	TRANSISTOR DTA114ES		Q55	8-729-422-57	TRANSISTOR UN4111	
	R27	1-249-429-11	CARBON 10K 5% 1/4W	(EE)				
					R37	1-249-433-11	CARBON 22K 5% 1/4W	(EE, CIS)
29			*** ACCESSORIES & PACKING MATERIALS ***				*** ACCESSORIES & PACKING MATERIALS ***	
	*	4-926-563-01	CUSHION		*	4-926-563-03	CUSHION	

- Abbreviation

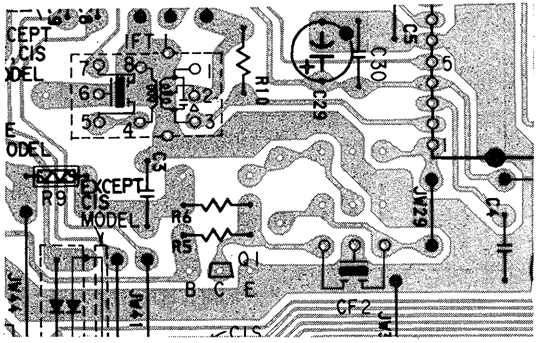
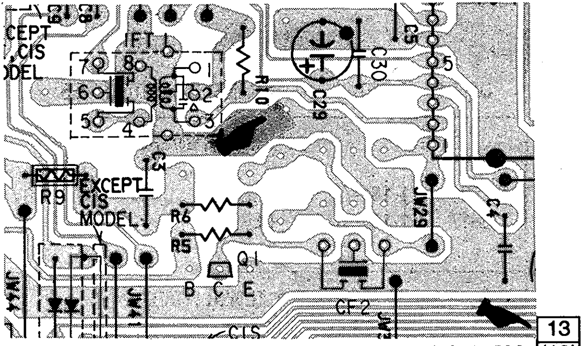
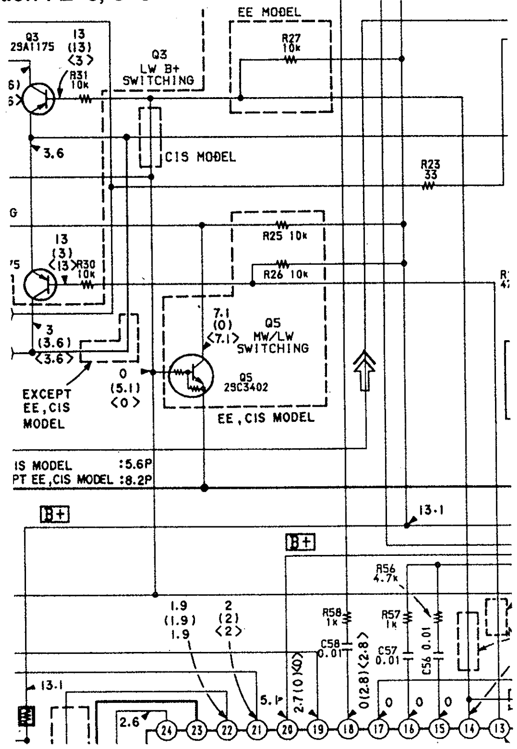
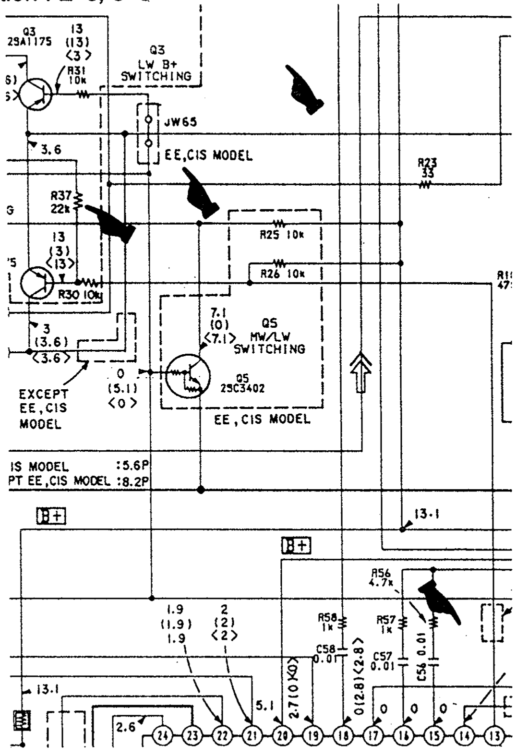
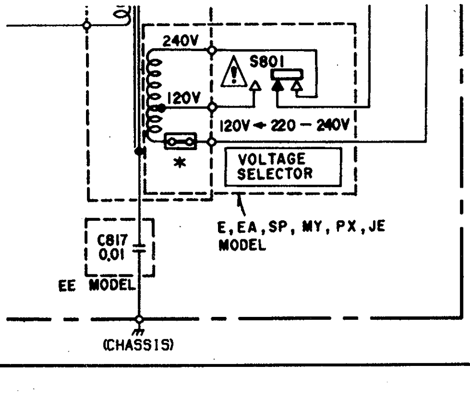
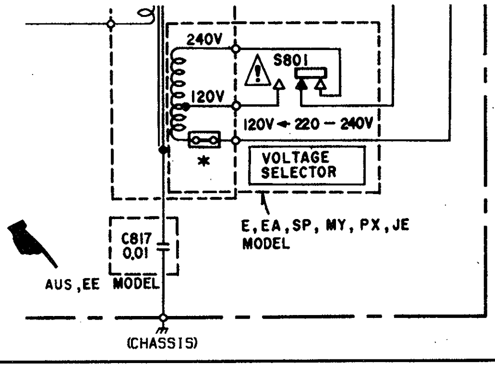
EE : East European model
EA : Saudi Arabia model
MX : Mexican model
SP : Singapore model
MY : Malaysia model
AUS: Australian model
JE : Tourist model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

☛ : indicates changed portion.

Page	FORMER	NEW
8	**[TUNER BOARD]** Location : C–D, 3–5  1-655-766-12	**[TUNER BOARD]** Location : C–D, 3–5  13 1-655-766-(13)

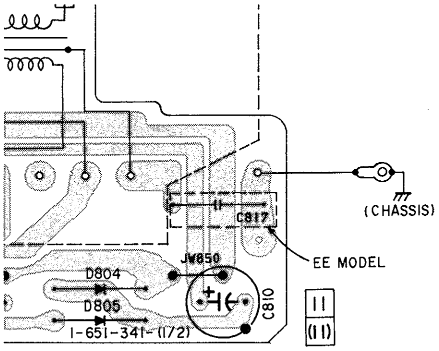
: indicates changed portion.

Page	FORMER	NEW
9	**[TUNER BOARD]** Location : C–D, 5–7  IFT 1 R10 C29 C30 R9 EXCEPT CIS MODEL R6 R5 Q1 B C E CF2 JW29 C4 C3 1-655-766-12	**[TUNER BOARD]** Location : C–D, 5–7  IFT 1 R10 C29 C30 R9 EXCEPT CIS MODEL R6 R5 Q1 B C E CF2 JW29 C4 C3 13 1-655-766-(13)
11	**[TUNER BOARD]** Location : E–J, 5–8  EE MODEL R27 10k Q3 2SA1175 Q3 LW B+ SWITCHING R31 10k CIS MODEL R23 33 R25 10k R26 10k R30 10k Q5 MW/LW SWITCHING Q5 2SC3402 EE, CIS MODEL EXCEPT EE, CIS MODEL IS MODEL :5.6P PT EE, CIS MODEL :8.2P B+ R56 4.7k R58 1k R57 1k C58 0.01 C57 0.01 C56 0.01 13-1	**[TUNER BOARD]** Location : E–J, 5–8  Q3 2SA1175 Q3 LW B+ SWITCHING R31 10k JW65 EE, CIS MODEL R37 22k R23 33 R25 10k R26 10k R30 10k Q5 MW/LW SWITCHING Q5 2SC3402 EE, CIS MODEL EXCEPT EE, CIS MODEL IS MODEL :5.6P PT EE, CIS MODEL :8.2P B+ R56 4.7k R58 1k R57 1k C58 0.01 C57 0.01 C56 0.01 13-1
20	**[POWER BOARD]** Location : F–G, 9–11  240V S801 120V 120V ← 220 – 240V VOLTAGE SELECTOR * E, EA, SP, MY, PX, JE MODEL C817 0.01 EE MODEL (CHASSIS)	**[POWER BOARD]** Location : F–G, 9–11  240V S801 120V 120V ← 220 – 240V VOLTAGE SELECTOR * E, EA, SP, MY, PX, JE MODEL C817 0.01 AUS, EE MODEL (CHASSIS)

☛ : indicates changed portion.

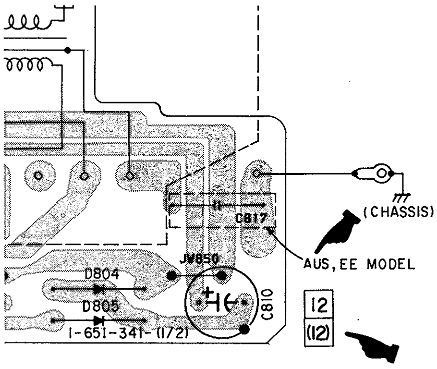
<table>
<tr><th>Page</th><th>FORMER</th><th>NEW</th></tr>
<tr><td>22.</td><td>

[POWER BOARD]
Location : E–F, 7–9


(CHASSIS)
C817
EE MODEL
JW850
D804
D805
1-651-341-(172)
C810
11
(11)

</td><td>

[POWER BOARD]
Location : E–F, 7–9


(CHASSIS)
C817
AUS, EE MODEL
JW850
D804
D805
1-651-341-(172)
C810
12
(12)

</td></tr>
</table>

Sony Corporation
Home A&V Products Company

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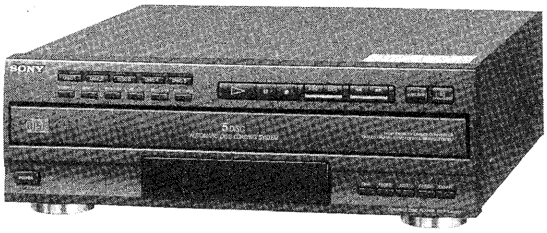
Published by Service and Safety Engineering Dept. (Shibaura)

CDP-C433M

SERVICE MANUAL

AEP Model
E Model
Australian Model



This set is compact disc player section in LBT-A590/A595/A790/A795.

Model Name Using Similer Mechanism	CDP-C325M/C422M
CD Mechanism Type	CDM16E8-5BD13
Base Unit Type	BU-5BD13B
Optical Pick-up Type	KSS-240A

SPECIFICATIONS

System	Compact disc digital audio system
Laser	Semiconductor laser
Wavelength	780 - 790 nm
Frequency response	2 Hz - 20 kHz (± 0.5 dB)
Signal to noise ratio	More than 100 dB
Dynamic range	More than 98 dB
Harmonic distortion	Less than 0.005% (1 kHz)
Channel separation	More than 96 dB (1 kHz)
Wow and flutter	Below measurable limit
Outputs	
LINE OUT (phono jacks)	Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms

General

Power requirements	
Model for the Australia	240 V AC, 50/60 Hz
Model for Continental Europe	220 - 230 V AC, 50/60 Hz
Model for other countries	110 - 120 or 220 - 240 V AC adjustable, 50/60 Hz
Power consumption	12 W
Dimensions (not including projecting parts and controls)	Approx. 355 x 120 x 385 mm (w/h/d) (14 x 4 3/4 x 15 1/4 inches)
Weight	Approx. 5.0 kg (11 lbs 1 oz)
Supplied accessories	Audio signal connecting cord 1 (phono plug x 2 ←→ phono plug x 2)

Design and specifications subject to change without notice.

使用時は添付資料も参照のこと
Refer to the additional documents.

COMPACT DISC PLAYER

SONY®

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside of the unit.

CAUTION	; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	; USYNLIG LASERSTRALING VED ABNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDS ÆTTELSE FOR STRALING.
VARO!	; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING	; LASERSTRALING NÄR DENNA DEL ÄR OPPNAD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	; USYNLIG LASERSTRALING NAR DEKSEL APNES UNNGA EKSPONERING FOR STRALEN.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

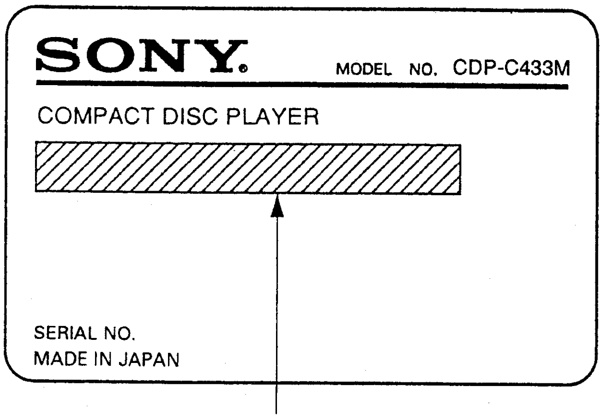
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

MODEL IDENTIFICATION

— Specification Label —



AEP model : AC220—230V, 50/60Hz, 12W
E model : AC110—120/220—240V, 50/60Hz, 12W
Australian model : AC240V, 50/60Hz 12W

TABLE OF CONTENTS

Section Title Page

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- IC103 Digital Filter & D/A Converter (CXD2565AM) ... 31
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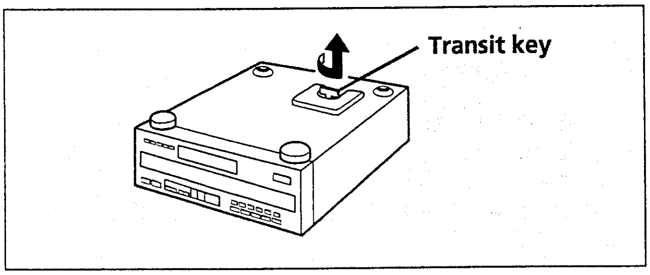
5-2. Chassis Assembly 34
5-3. Tray Assembly 35
5-4. Optical Pick-up Block (BU-5BD13B) 36

6. ELECTRICAL PARTS LIST 37

Note on the Transit key



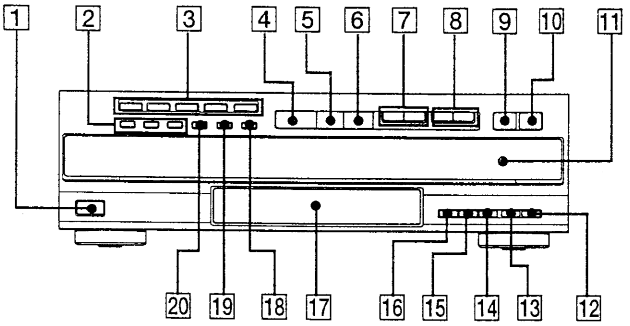
The transit key on the bottom exterior of the unit protects the optical system against shock during transportation. Before operating the CD player, be sure to remove the key by following the instructions on the label, and store it in a safe place.

When transporting the unit, replace the key in its original hole and lock it in place.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location of Controls



Refer to the pages indicated in ( ) for details.

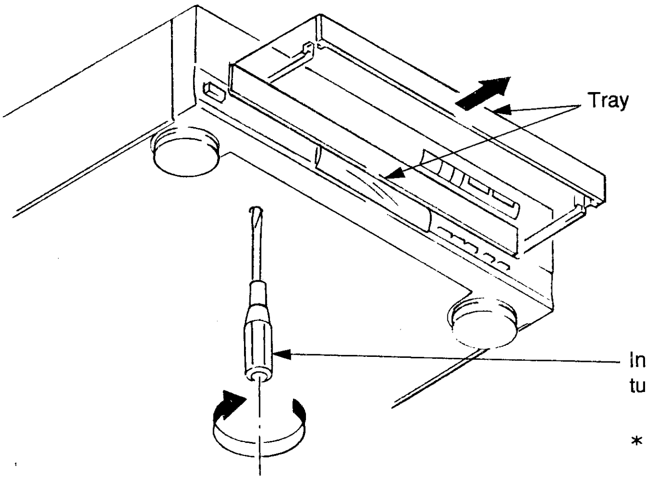
1 POWER switch (page 12)
2 PLAY MODE buttons
  CONTINUE button (page 12)
  SHUFFLE button (page 20)
  PROGRAM button (page 22, 28)
3 DISC 1-5 buttons (page 12)
4 ►(play) button (page 12)
5 ❚❚ (pause) button (page 12)
6 ■ (stop) button (page 12)
7 ⏮/⏭ (AMS*) buttons (page 16)
8 ◀◀/▶▶ (manual search) buttons (page 18)
9 DISC SKIP button (page 12)
10 ⏏ OPEN/CLOSE button (page 12)
11 Disc tray (page 12)
12 CLEAR (program clear) button (page 24)
13 CHECK (program check) button (page 24)
14 EDIT button (page 32)
15 FADER button (page 36)
16 TIME button (page 14)
17 Display window
18 PEAK SEARCH button (page 36)
19 MUSIC SCAN button (page 18)
20 REPEAT button (page 26)

* AMS is the abbreviation of Automatic Music Sensor.

SECTION 2

SERVECING NOTE

2-1. HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



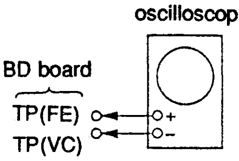
Insert a tapering driver into aperture of the unit bottom, and turn in the direction of arrow (to OUT direction).

* To close the disc tray, turn the driver in the reverse direction (to IN direction).

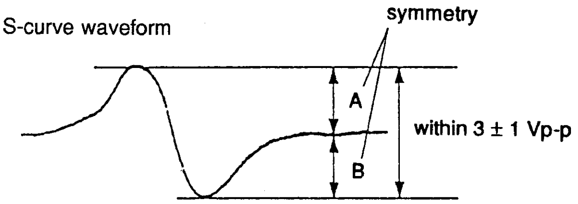
SECTION 3
ELECTRICAL BLOCK CHECKING

Note :
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal lever is low than specified value with the following checks.

S Curve Check



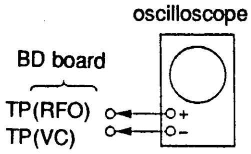
Procedure :
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.



6. After check, remove the lead wire connected in step 2.

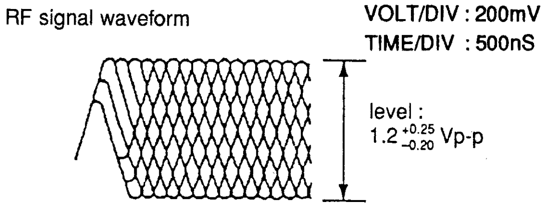
Note :
- Try to mesure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

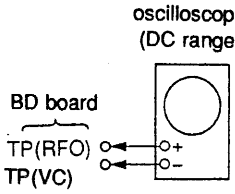


Procedure :
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

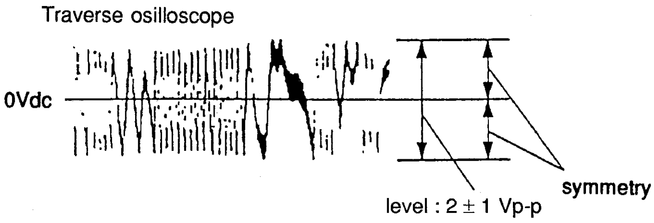
Note :
Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.



E-F Balance Check



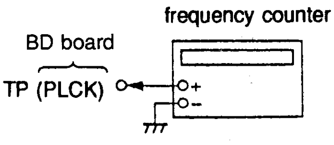
Procedure :
1. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI) to TP (VC) with lead wire.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.



6. Remove the lead wire connected in step 1.

RF Free-run Frequency Check

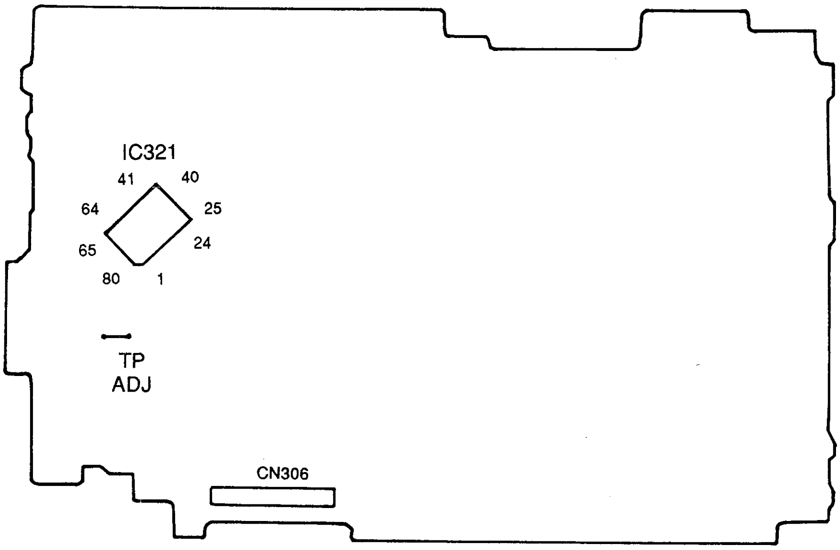
Procedure :
1. Connect frequency counter to test point (PLCK) with lead wire.



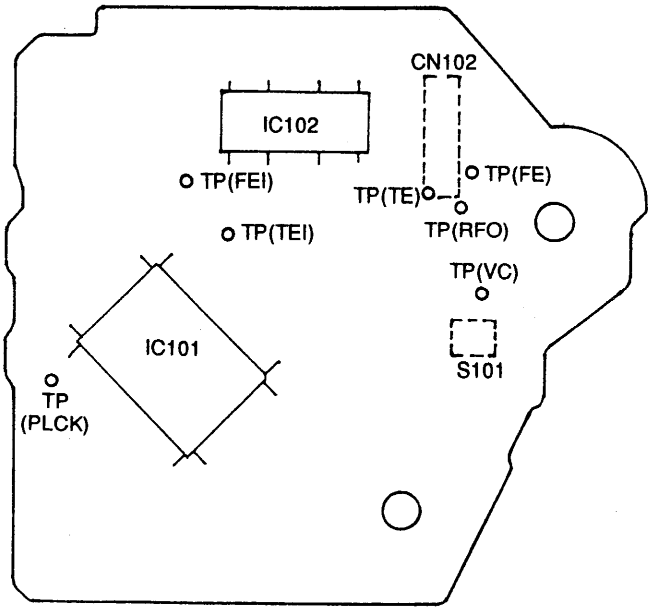
2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[MAIN BOARD] — Conductor Side —

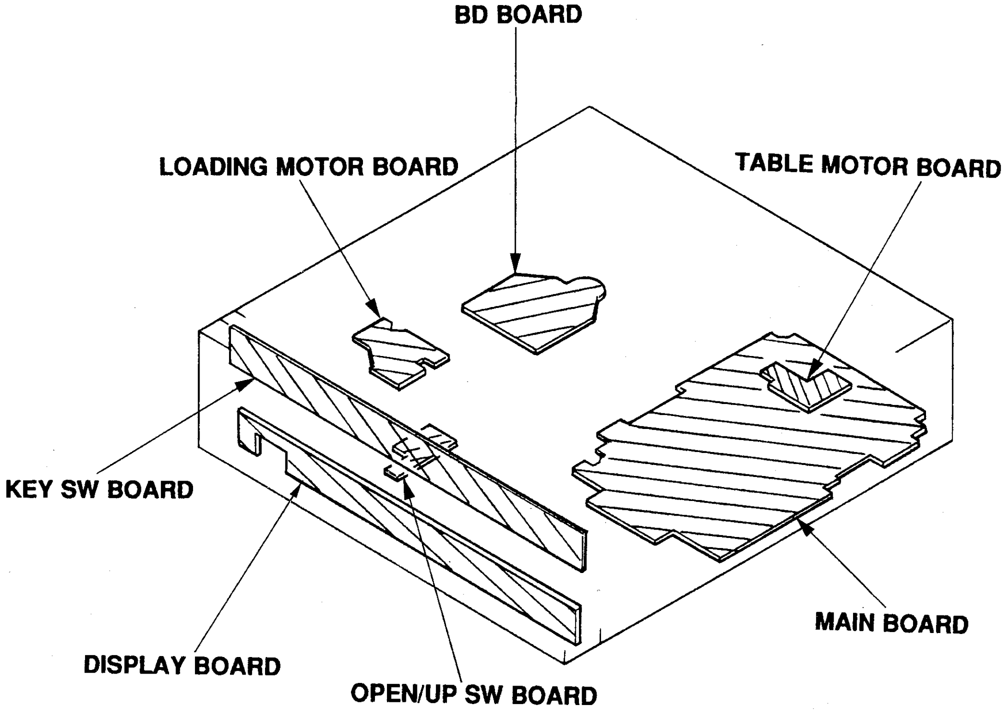

IC321
41
40
64
25
65
24
80
1
TP
ADJ
CN306

[BD BOARD] — Conductor Side —


CN102
IC102
TP(FEI)
TP(FE)
TP(TE)
TP(RFO)
TP(TEI)
TP(VC)
IC101
S101
TP
(PLCK)

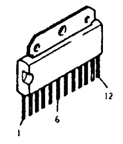
SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

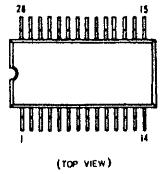

BD BOARD
LOADING MOTOR BOARD
TABLE MOTOR BOARD
KEY SW BOARD
MAIN BOARD
DISPLAY BOARD
OPEN/UP SW BOARD

4-2. SEMICONDUCTOR LEAD LAYOUTS

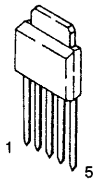
BA6191



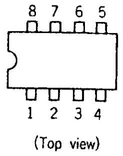
CXD2565AM


28
15
1
14
(TOP VIEW)

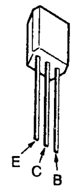
L78LR05D



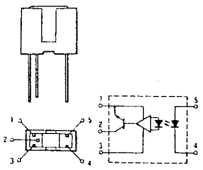
UPC4558C


8 7 6 5
1 2 3 4
(Top view)

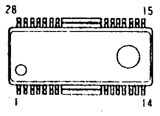
DTA144ES
DTC144ES



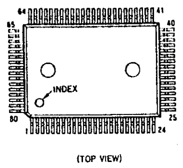
GP-1A521



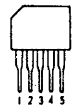
BA6392FP



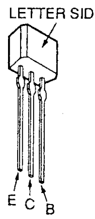
CXP82316-038Q


64
41
65
40
INDEX
80
25
1
24
(TOP VIEW)

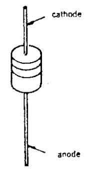
M5293L



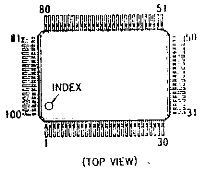
2SA1175-HFE
2SC403SP-51
2SC3623A-LK


LETTER SIDE
E
C
B

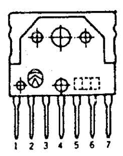
RD5.6ESB2
RD9.1ESB2
11ES2


cathode
anode

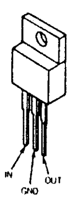
CXD2515Q


80
51
81
50
INDEX
100
31
1
30
(TOP VIEW)

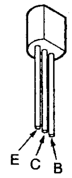
LA5602



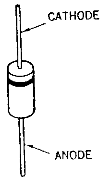
M5F78M07L



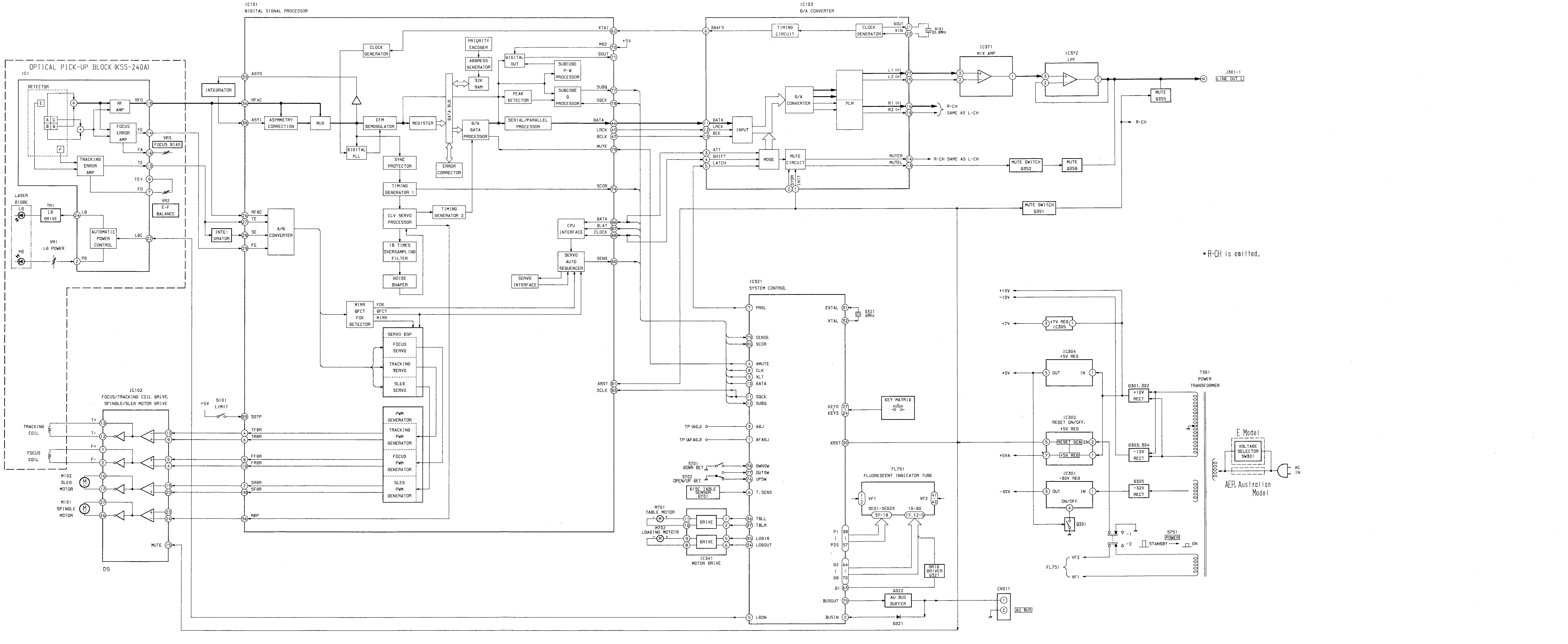
2SC2878-AB



1N4148M


CATHODE
ANODE

4-3. BLOCK DIAGRAM

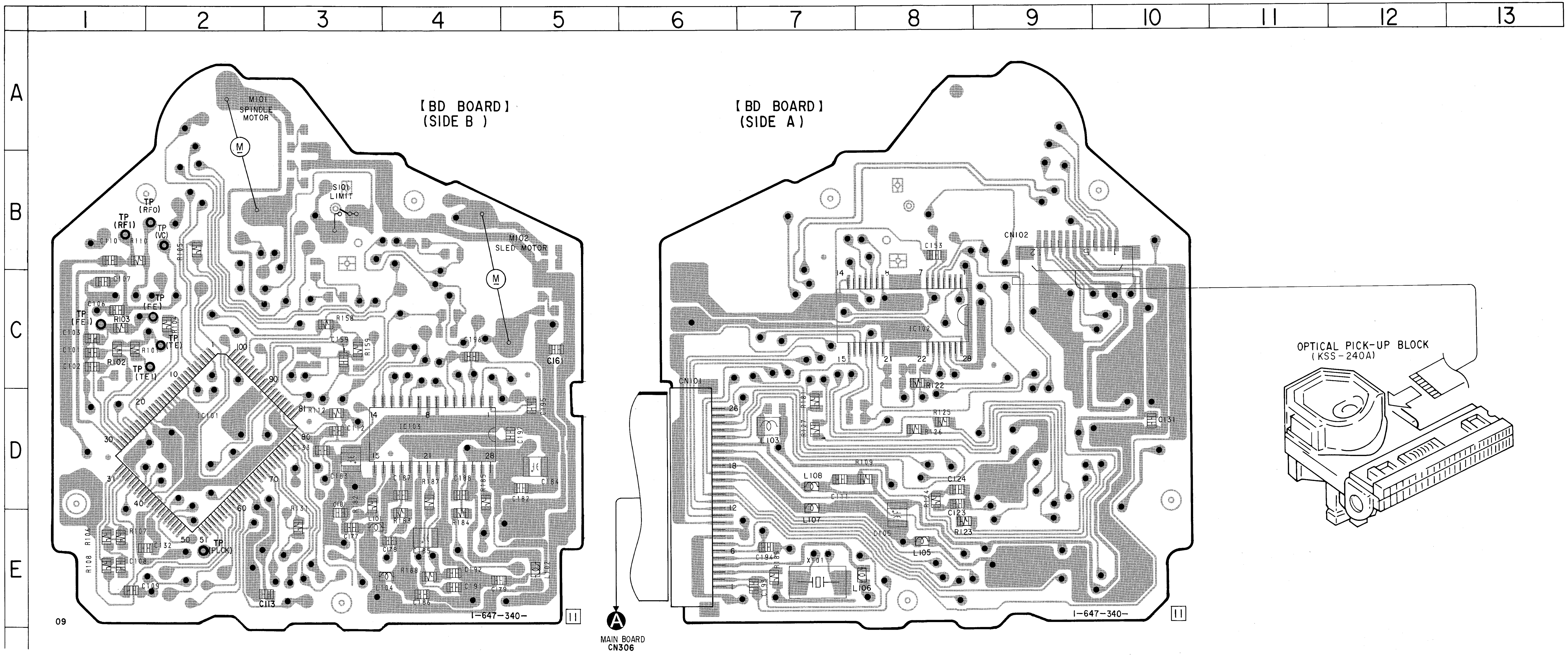

IC101
DIGITAL SIGNAL PROCESSOR
IC103
D/A CONVERTER
OPTICAL PICK-UP BLOCK (KSS-240A)
IC1
DETECTOR
RF AMP
FOCUS ERROR AMP
TRACKING ERROR AMP
VR3
FOCUS BIAS
VR2
E-F BALANCE
LASER DIODE
TR1
LD DRIVE
VR1
LD POWER
AUTOMATIC POWER CONTROL
INTEGRATOR
INTE-GRATOR
A/D CONVERTER
ASYMMETRY CORRECTION
MUX
CLOCK GENERATOR
DIGITAL PLL
EFM DEMODULATOR
REGISTER
DATA BUS
ERROR CORRECTOR
PRIORITY ENCODER
ADDRESS GENERATOR
32K RAM
DIGITAL OUT
SUBCODE P-W PROCESSOR
PEAK DETECTOR
SUBCODE Q PROCESSOR
D/A DATA PROCESSOR
SERIAL/PARALLEL PROCESSOR
SYNC PROTECTOR
TIMING GENERATOR 1
TIMING GENERATOR 2
CLV SERVO PROCESSOR
18 TIMES OVERSAMPLING FILTER
NOISE SHAPER
CPU INTERFACE
SERVO AUTO SEQUENCER
SERVO INTERFACE
MIRR DFCT FOK DETECTOR
SERVO DSP
FOCUS SERVO
TRACKING SERVO
SLED SERVO
PWM GENERATOR
TRACKING PWM GENERATOR
FOCUS PWM GENERATOR
SLED PWM GENERATOR
IC102
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
TRACKING COIL
FOCUS COIL
M102
SLED MOTOR
M101
SPINDLE MOTOR
S101
LIMIT
+5V
TIMING CIRCUIT
CLOCK GENERATOR
X101
33.8MHz
INPUT
D/A CONVERTER
PLM
MODE
MUTE CIRCUIT
R-CH SAME AS L-CH
IC371
MIX AMP
IC372
LPF
J301-1
LINE OUT L
MUTE Q355
R-CH
MUTE SWITCH Q352
MUTE Q358
MUTE SWITCH Q351
•R-CH is omitted.
IC321
SYSTEM CONTROL
X321
4MHz
KEY MATRIX
TP (ADJ)
TP (AFADJ)
S701
DOWN DET
S702
OPEN/UP DET
DISC TABLE SENSOR Q701
M701
TABLE MOTOR
M702
LOADING MOTOR
DRIVE
IC341
MOTOR DRIVE
FL751
FLUORESCENT INDICATOR TUBE
SE01-SE020
1G-8G
GRID DRIVER Q321
Q322
AU BUS BUFFER
D321
CN311
AU BUS
+10V
-10V
+7V
+7V REG IC305
IC304
+5V REG
IC302
RESET ON/OFF, +5V REG
RESET GEN
+5V REG
+5VA
IC301
-30V REG
ON/OFF
Q301
-30V
D301, 302
+10V RECT
D303, 304
-10V RECT
D305
-32V RECT
T301
POWER TRANSFORMER
E Model
VOLTAGE SELECTOR SW301
AEP, Australian Model
AC IN
S751
POWER
STANDBY
ON
FL751
VF2
VF1

4-4. PRINTED WIRING BOARD — BD SECTION —

- See page 8 for Circuit Boards Location.
- See page 8 for Semiconductor Lead Layouts.

- **Semiconductor Location**

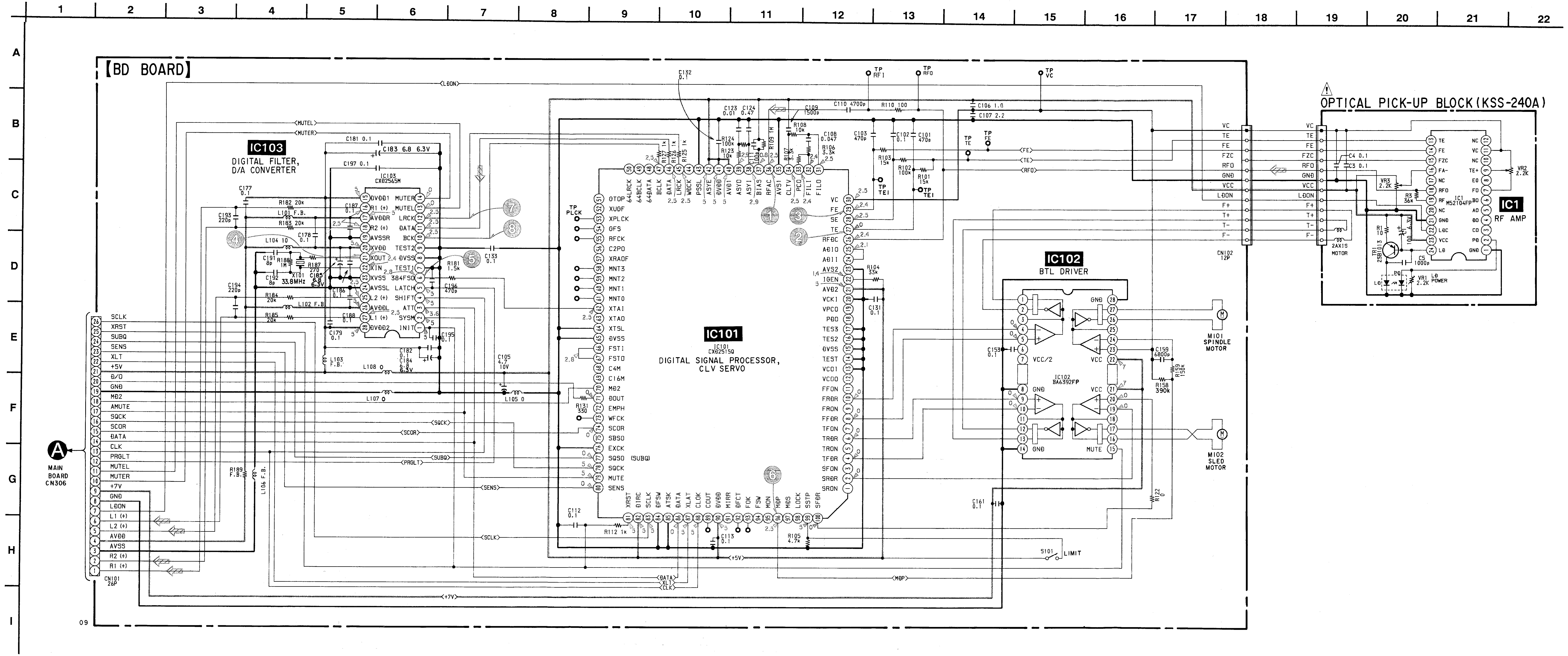
Ref. No.	Location
IC101	D-2
IC102	C-8
IC103	D-4


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
[BD BOARD]
(SIDE B)
[BD BOARD]
(SIDE A)
M101
SPINDLE
MOTOR
M102
SLED MOTOR
S101
LIMIT
TP (RFO)
TP (RFI)
TP (VC)
TP (FE)
TP (FEI)
TP (TE)
TP (TEI)
TP (PLCK)
IC101
IC102
IC103
CN101
CN102
C161
C113
L103
L105
L106
L107
L108
X101
R122
R123
C124
C123
C131
C153
1-647-340-
11
09
A
MAIN BOARD
CN306
OPTICAL PICK-UP BLOCK
(KSS-240A)

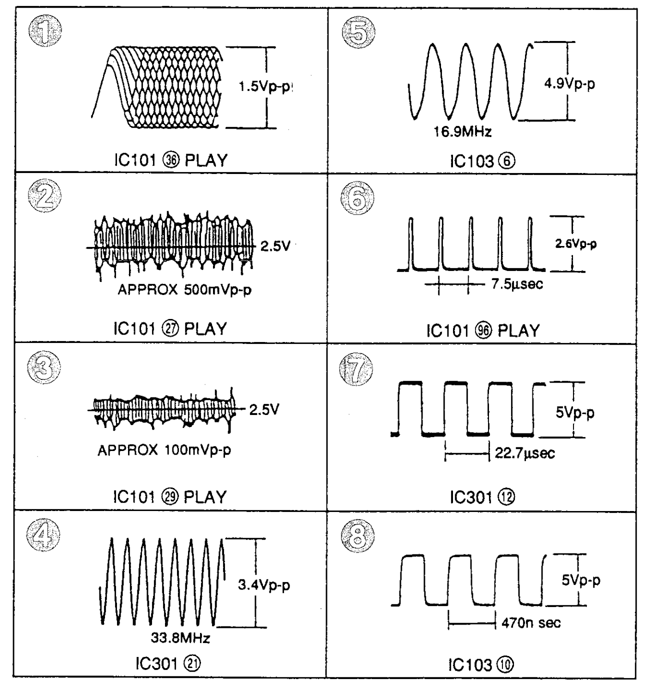
Note:
- ● : Through hole.
- ▨ : Pattern from the side which enable seeing.
(The other layer's patterns are not indicated.)

4-5. SCHEMATIC DIAGRAM — BD SECTION —

- See pages 29 to 31 for IC Pin Functions. (IC101, IC103)


[BD BOARD]
IC103
DIGITAL FILTER, D/A CONVERTER
IC103 CXD2565M
IC101
IC101 CXD2515Q
DIGITAL SIGNAL PROCESSOR, CLV SERVO
IC102
BTL DRIVER
IC102 BA6392FP
OPTICAL PICK-UP BLOCK(KSS-240A)
IC1
RF AMP
IC1 M52104FP
M101 SPINDLE MOTOR
M102 SLED MOTOR
2AXIS MOTOR
S101 LIMIT
CN102 12P
A
MAIN BOARD CN306
CN101 26P
X101 33.8MHz
TP PLCK
TP RFI
TP RFO
TP VC
TP TE
TP FE
TP TEI
SCLK
XRST
SUBQ
SENS
XLT
+5V
D/O
GND
MD2
AMUTE
SQCK
SCOR
DATA
CLK
PRGLT
MUTEL
MUTER
+7V
LDON
L1 (+)
L2 (+)
AVDD
AVSS
R2 (+)
R1 (+)
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T+
T-
F-
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

• Waveforms



Note:

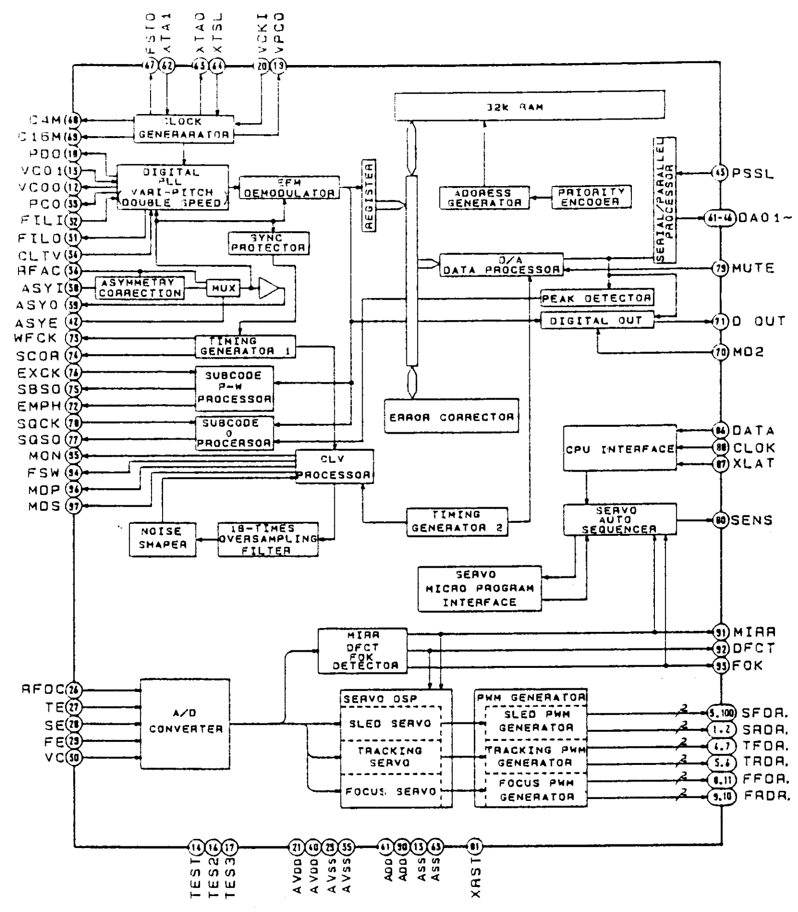
- All capacitors are in μF unless otherwise noted. pF:μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

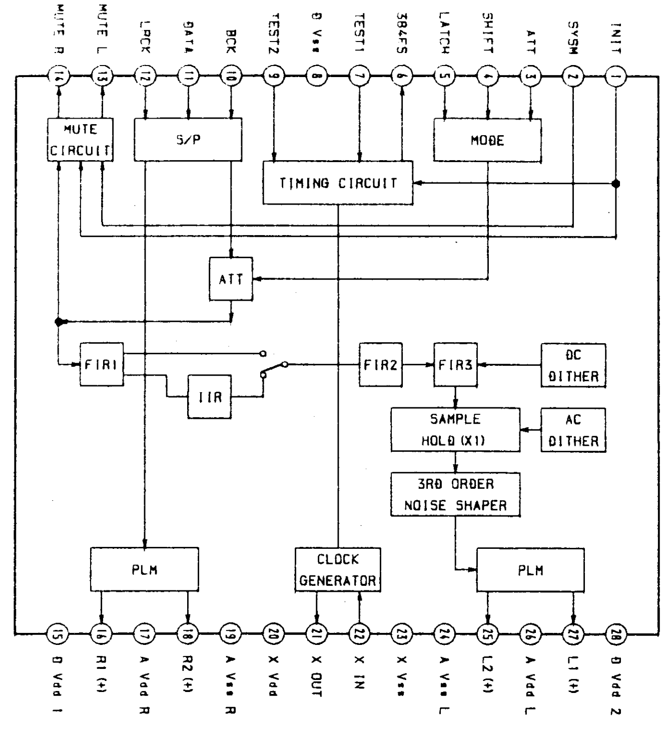
- ▭ : B+ Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

• IC Block Diagrams

IC101 CXD2515Q


C4M
C16M
PDO
VCO1
VCO0
PCO
FILI
FILO
CLTV
RFAC
ASYI
ASYO
ASYE
WFCK
SCOR
EXCK
SBSO
EMPH
SQCK
SQSO
MON
FSW
MDP
MDS
RFDC
TE
SE
FE
VC
CLOCK GENERATOR
DIGITAL PLL
32K RAM
ADDRESS GENERATOR
PRIORITY ENCODER
EFM DEMODULATOR
SYNC PROTECTOR
ASYMMETRY CORRECTION
D/A DATA PROCESSOR
PEAK DETECTOR
DIGITAL OUT
TIMING GENERATOR 1
SUBCODE P-W PROCESSOR
SUBCODE Q PROCESSOR
ERROR CORRECTOR
CLV PROCESSOR
CPU INTERFACE
NOISE SHAPER
OVERSAMPLING FILTER
TIMING GENERATOR 2
SERVO AUTO SEQUENCER
SERVO MICRO PROGRAM INTERFACE
MIRR DFCT FOK DETECTOR
A/D CONVERTER
SERVO DSP
FOCUS SERVO
TRACKING SERVO
SLED SERVO
PWM GENERATOR
FOCUS PWM GENERATOR
TRACKING PWM GENERATOR
SLED PWM GENERATOR
PSSL
DA01-16
MUTE
D OUT
MD2
DATA
CLOK
XLAT
SENS
MIRR
DFCT
FOK
SFDR, SF
SRDR, SR
TFDR, TF
TRDR, TR
FFDR, FF
FRDR, FR

IC103 CXD2565AM

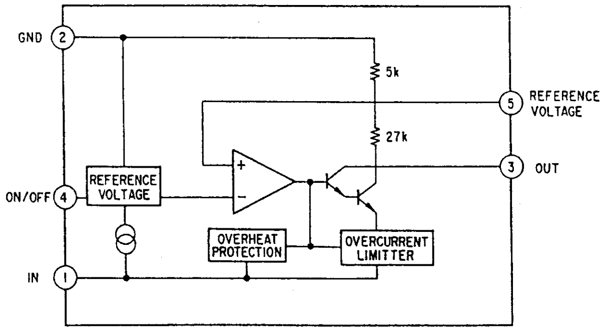

MUTE R
MUTE L
LRCK
DATA
BCK
TEST2
D VDD
TEST1
SHIFT
LATCH
ATT
SYSM
INIT
MUTE CIRCUIT
S/P
TIMING CIRCUIT
MODE
ATT
FIR1
IIR
FIR2
FIR3
DC DITHER
SAMPLE HOLD (X1)
AC DITHER
3RD ORDER NOISE SHAPER
PWM
CLOCK GENERATOR
PWM
D VSS
R1
A VDD R
R2
D VSS
X OUT
X IN
A VSS
A VDD L
L2
L1
D VDD

4-6. SCHEMATIC DIAGRAM — MAIN SECTION —

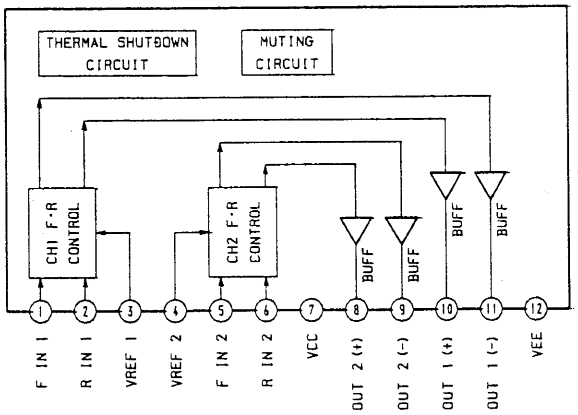
• See page 32 for IC Pin Functions. (IC321)

• IC Block Diagrams

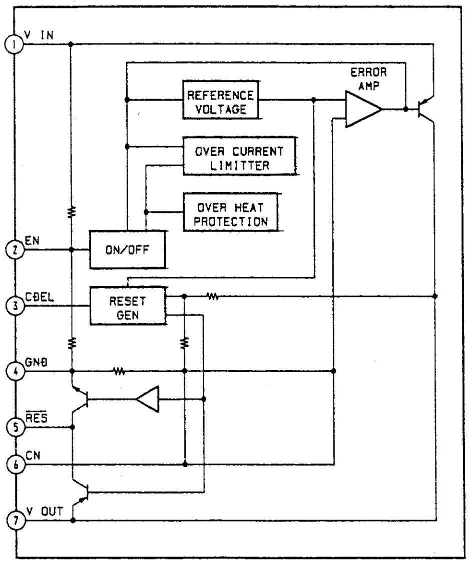
IC301 M5293L


GND 2
5k
REFERENCE VOLTAGE 5
27k
OUT 3
+
−
ON/OFF 4
REFERENCE VOLTAGE
OVERHEAT PROTECTION
OVERCURRENT LIMITTER
IN 1

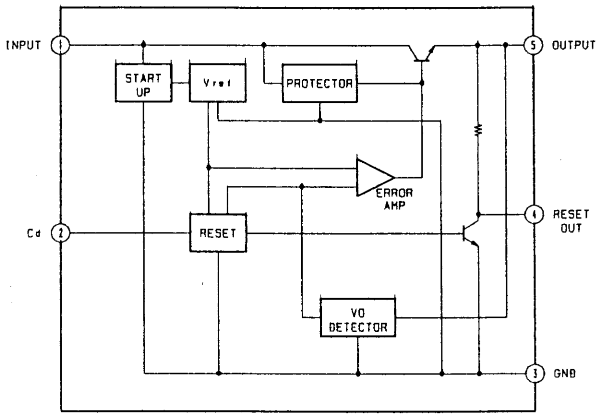
IC341 BA6191


THERMAL SHUTDOWN CIRCUIT
MUTING CIRCUIT
CH1 F·R CONTROL
CH2 F·R CONTROL
BUFF
BUFF
BUFF
BUFF
1 F IN 1
2 R IN 1
3 VREF 1
4 VREF 2
5 F IN 2
6 R IN 2
7 VCC
8 OUT 2 (+)
9 OUT 2 (-)
10 OUT 1 (+)
11 OUT 1 (-)
12 VEE

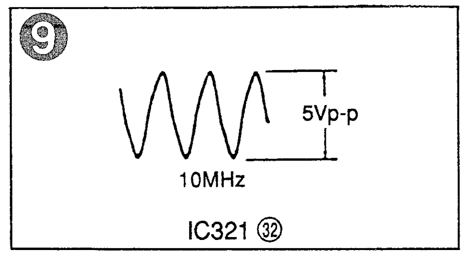
IC302 LA5602


1 V IN
ERROR AMP
REFERENCE VOLTAGE
OVER CURRENT LIMITTER
OVER HEAT PROTECTION
2 EN
ON/OFF
3 CDEL
RESET GEN
4 GND
5 RES
6 CN
7 V OUT

IC304 L78LR05D


INPUT 1
5 OUTPUT
START UP
Vref
PROTECTOR
ERROR AMP
Cd 2
RESET
4 RESET OUT
VO DETECTOR
3 GND

- **Waveform**

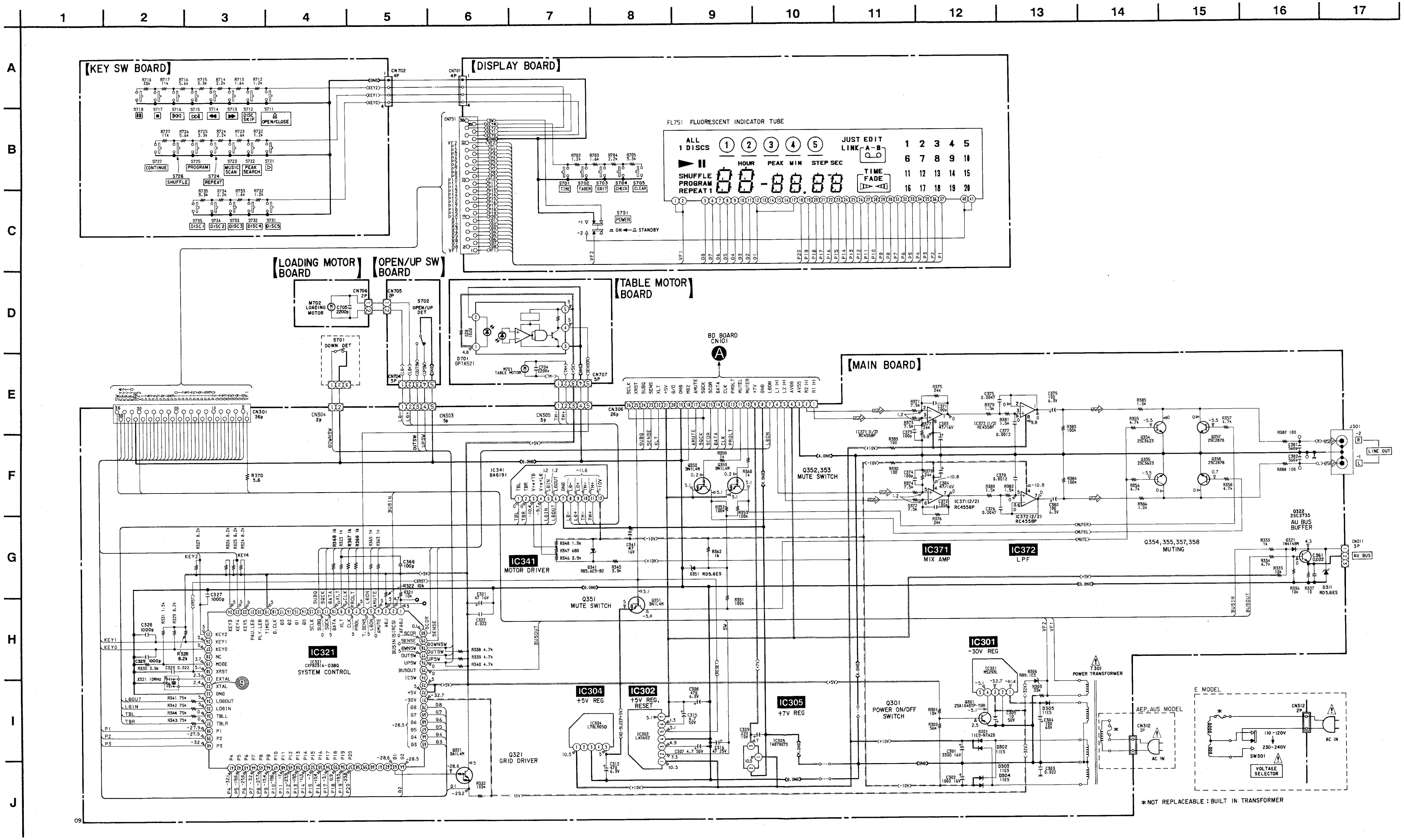


Note:

- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬▬ : B+ Line
- ▪▪▪▪▪ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD


[KEY SW BOARD]
[DISPLAY BOARD]
FL751 FLUORESCENT INDICATOR TUBE
[LOADING MOTOR BOARD]
[OPEN/UP SW BOARD]
[TABLE MOTOR BOARD]
BD BOARD CN101
[MAIN BOARD]
IC341 MOTOR DRIVER
IC321 SYSTEM CONTROL
Q351 MUTE SWITCH
Q352,353 MUTE SWITCH
IC371 MIX AMP
IC372 LPF
Q354,355,357,358 MUTING
Q322 2SC2735 AU BUS BUFFER
IC304 +5V REG
IC302 +5V REG, RESET
IC305 +7V REG
Q301 POWER ON/OFF SWITCH
IC301 -30V REG
Q321 GRID DRIVER
T301 POWER TRANSFORMER
AEP, AUS MODEL
E MODEL
AC IN
SW301 VOLTAGE SELECTOR
110-120V
230-240V
LINE OUT
AU BUS
*NOT REPLACEABLE : BUILT IN TRANSFORMER

4-7. PRINTED WIRING BOARDS — MAIN SECTION —

- See page 8 for Circuit Boards Location.
- See page 8 for Semiconductor Lead Layouts.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
A B C D E F G H I
[MAIN BOARD]
[KEY SW BOARD]
[DISPLAY BOARD]
[TABLE MOTOR BOARD]
[LOADING MOTOR BOARD]
[OPEN/UP SW BOARD]
AEP, AUS MODEL
E MODEL
VOLTAGE SELECTOR
110 - 120V
220 - 240V
POWER TRANSFORMER
FLUORESCENT INDICATOR TUBE
LOADING MOTOR
TABLE MOTOR

- **Semiconductor Location**

Ref. No.	Location
D301	G-5
D302	G-5
D303	F-5
D304	G-5
D305	F-5
D306	E-4
D311	C-3
D321	D-12
D341	C-6
D351	D-8
D701	G-16
IC301	F-4
IC302	G-5
IC304	G-8
IC305	F-8
IC321	E-11
IC341	C-8
IC371	B-6
IC372	B-5
Q301	E-5
Q321	D-13
Q322	D-12
Q351	G-9
Q352	C-9
Q353	D-9
Q354	A-3
Q355	B-3
Q357	A-3
Q358	C-3

Note:

- o—— : parts extracted from the component side.
- ▨: Pattern from the side which enable seeing.

4-8. IC PIN FUNCTIONS

- **IC101 DIGITAL SIGNAL PROCESSOR (CXD2515Q)**

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output
12	VCOO	O	VCO output for analog EFM PLL
13	VCOI	I	VCO output for analog EFM PLL
14	TEST	I	TEST pin connected normally to GND
15	DVss	–	Digital GND
16	TES2	I	TEST pin connected normally to GND
17	TES3	I	TEST pin connected normally to GND
18	PDO	O	Charge-pump output for analog EFM PLL
19	VPCO	O	Charge-pump output for variable pitch PLL
20	VCKI	I	Clock input from variable pitch external VCO
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog GND
24	ADII	I	Input pin for A/D converter
25	ADIO	O	Operational amplifier output pin
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog GND
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock
45	LRCK	O	48-bit slot D/A interface. LR clock
46	DATA	O	DA 16 output when PSSL=1. 48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1. 48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1. 64-bit slot data when PSSL=0
49	64BCLK	O	DA 13 output when PSSL=1. 64-bit slot data when PSSL=0
50	64LRCK	O	DA 12 output when PSSL=1. 64-bit slot data when PSSL=0
51	GTOP	O	DA 11 output when PSSL=1. GTOP output when PSSL=0
52	XUGF	O	DA 10 output when PSSL=1. XUGF output when PSSL=0
53	XPLCK	O	DA 09 output when PSSL=1. XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1. GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1. RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1. C2PO output when PSSL=0
57	XRAOF	O	DA 05 output when PSSL=1. XRA0F output when PSSL=0
58	MNT3	O	DA 04 output when PSSL=1. MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1. MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1. MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1. MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output
64	XTSL	I	X'tal selection input pin
65	DVss	–	Digital GND
66	FSTI	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	C4M	O	4.2336 MHz output
69	C16M	O	16.9344 MHz output
70	MD2	I	Digital-out ON/OFF control pin
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output
76	EXCK	I	Clock input for SBS0 read-out
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQS0 read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	DFCT selection pin
85	ATSK	I	Input pin for anti-shock

Pin No.	Pin Name	I/O	Function
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter
95	MON	O	Output to control ON/OFF of spindle motor
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

• IC103 DIGITAL FILTER & D/A CONVERTER (CXD2565AM)

Pin No.	Pin Name	I/O	Function
1	INIT	I	Re-synchronizing at rise-up edge of this signal
2	SYSM	–	Connected to GND
3	ATT	I	Attenuation data input
4	SHIFT	I	Shift clock input
5	LATCH	I	Latch clock input
6	384FS	O	384FS clock output
7	TEST1	–	Connected to GND
8	DVss	–	Digital GND
9	TEST2	–	Connected to GND
10	BCK	I	BCK input
11	DATA	I	Data input
12	LRCK	I	LRCK input
13	MUTEL	O	Not used
14	MUTER	O	Not used
15	DVDD1	–	Digital power supply
16	R1 (+)	O	R-ch PLM output-1 (positive phase)
17	AVDDR	–	L-ch analog power supply
18	R2 (+)	O	R-ch PLM output-2 (positive phase)
19	AVssR	–	L-ch analog GND
20	XVDD	–	Master clock power supply
21	XOUT	O	X'tal oscillator output (33.8 MHz)
22	XIN	I	X'tal oscillator input (33.8 MHz)
23	XVss	–	Master clock GND
24	AVssL	–	L-ch analog GND
25	L2 (+)	O	L-ch PLM output-2 (positive phase)
26	AVDDL	–	L-ch analog power supply
27	L1 (+)	O	L-ch PLM output-1 (positive phase)
28	DVDD2	–	Digital power supply

• IC321 SYSTEM CONTROL (CXP82316-038Q)

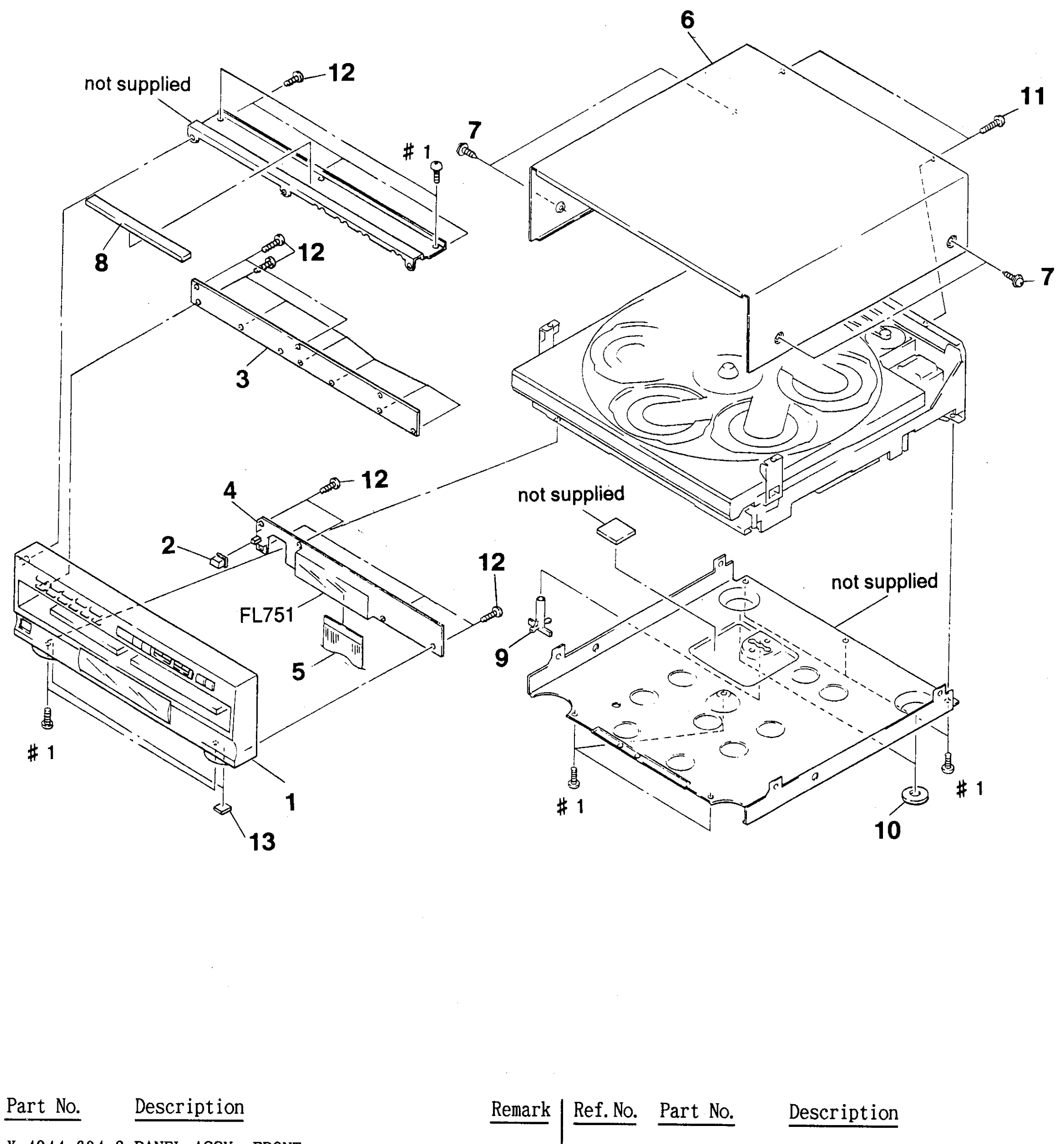
Pin No.	Pin Name	I/O	Function
1	AF ADJ	I	Test mode pin. Normally: "H"
2	BUSIN	I	Audio bus input
3	ADJ	I	Test mode pin. Normally: "H"
4	AMUTE	O	Analog muting control signal output
5	LDON	O	Optical pick-up laser diode control. ON: "H"
6	T.SENS	I	Slit sensor of disc table input
7	PRGL	O	Latch signal output pin to digital filter IC
8	CLK	O	Serial clock output
9	XLT	O	Serial data latch signal output
10	DATA	O	Serial data output
11	SQCK	O	Subcode Q data readout clock output
12	SUBQ	I	Subcode Q data input
13	SCLK	O	Internal register of DSP readout clock output
14 to 17	D0 to D3	–	Not used
18	D.CLK	–	
19	TIMER	–	
20	PLY.LED	–	
21	PAU.LED	–	
22 to 27	KEY0 to KEY5	I	Key input
28	NC	–	Not used
29	MODE	I	Disc table feeling and stop precision fine adjustment
30	XRST	I	Reset signal input
31	EXTAL	I	10 MHz clock input
32	XTAL	O	10 MHz clock output
33	GND	–	GND
34	LODOUT	O	Loading motor control
35	LODIN	O	
36	TBLL	O	Table motor control
37	TBLR	O	
38 to 57	P1 to P20	O	FL segment output
58 to 62	—	–	Not used
63 to 70	G1 to G8	O	FL grid output
71	-30V	–	-30V
72	+5V	–	+5V
73	—	–	
74	ICSW	–	Not used
75	BUSOUT	O	Audio bus output
76	UPSW	I	Disc table up det
77	OUTSW	I	Loading output det
78	DWNSW	I	Disc table down det
79	SENSE	I	SENSE signal input
80	SCOR	I	Subcode Q data readout timing signal input

SECTION 5
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- AUS : Australian model

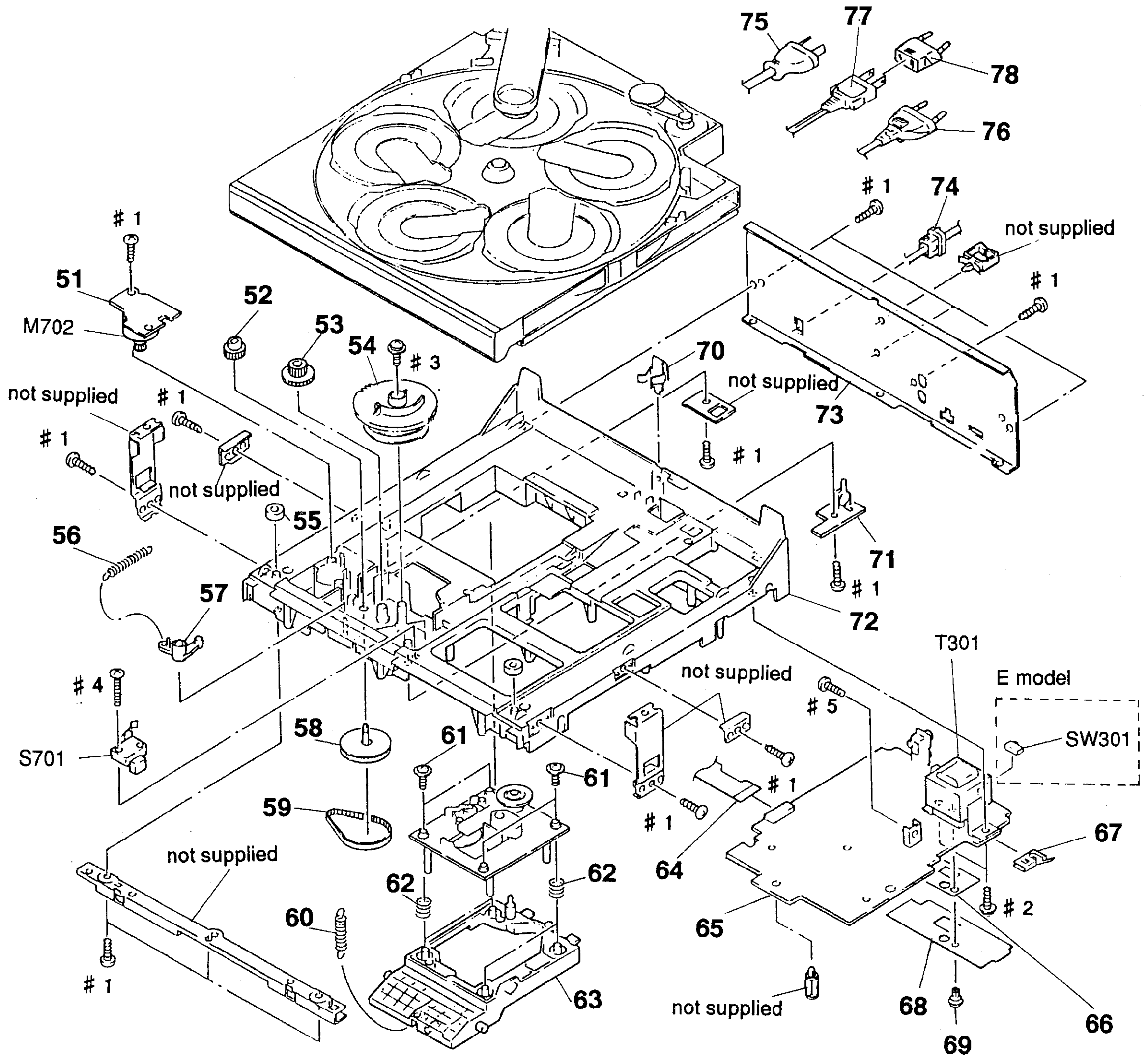
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-4944-684-2	PANEL ASSY, FRONT	
2	4-963-098-01	BUTTON (POWER)	
* 3	A-4673-077-A	KEY SW BOARD, COMPLETE	
* 4	1-652-800-12	DISPLAY BOARD	
5	1-765-431-11	WIRE (FLAT TYPE)(36 CORE)	
* 6	4-943-992-01	CASE	
7	3-704-366-01	SCREW (CASE)(M3X8)	
* 8	4-929-557-01	CUSHION (PANEL)	
9	4-937-945-01	PLATE (TRANSPORT), LOCK	
10	4-924-410-01	FELT	
11	3-703-685-21	SCREW (+BV 3X8)	
12	4-951-620-01	SCREW (2.6X8), +BVTP	
* 13	4-965-193-01	CUSHION	
FL751	1-519-721-11	INDICATOR TUBE, FLUORESCENT	

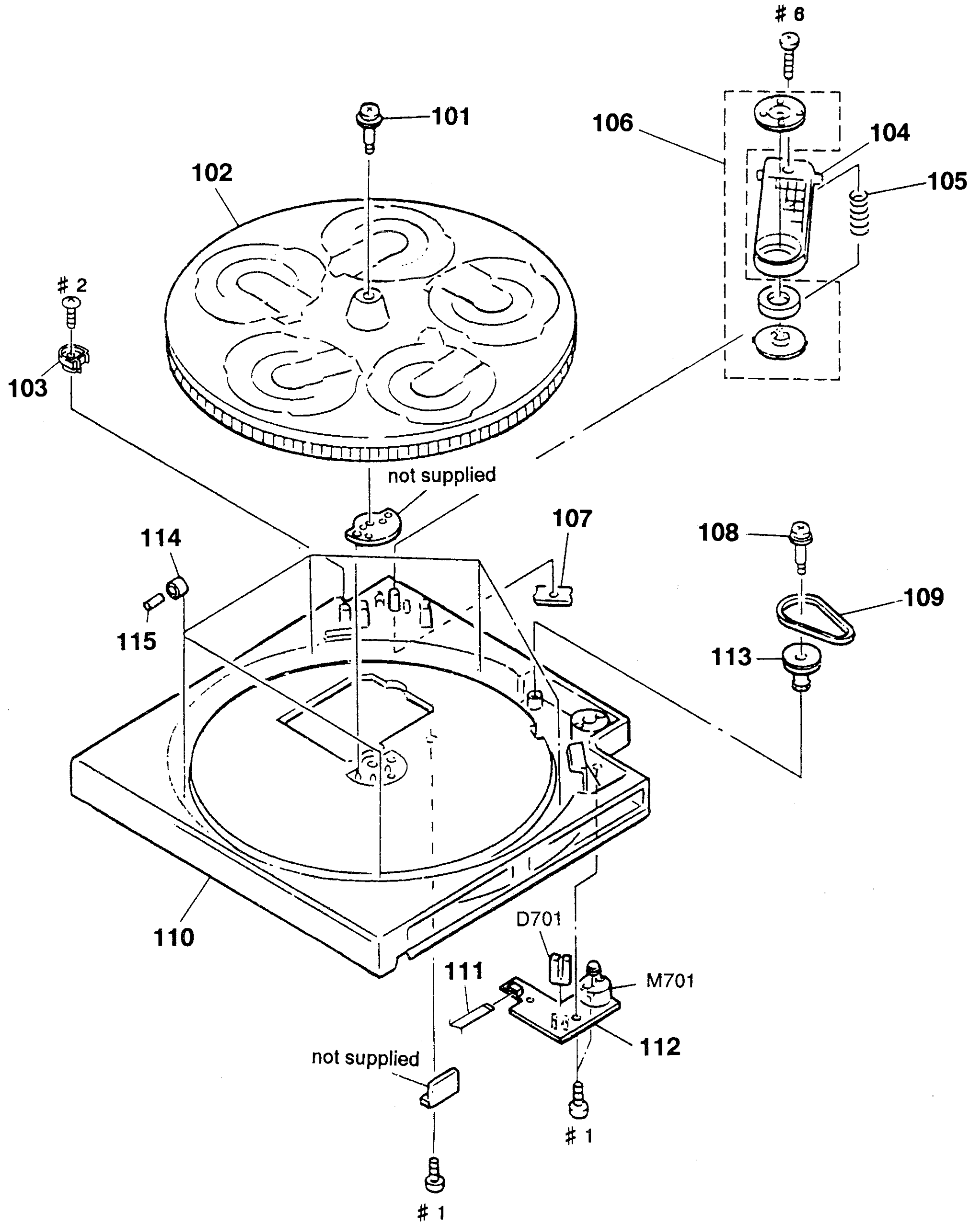
5-2. CHASSIS ASSEMBLY


75
77
78
76
# 1
74
not supplied
# 1
# 1
51
M702
52
53
54
# 3
70
not supplied
73
not supplied
# 1
# 1
# 1
not supplied
55
56
57
71
# 1
72
T301
E model
SW301
not supplied
# 5
# 4
S701
58
61
61
# 1
59
# 1
67
not supplied
62
62
64
# 2
60
65
# 1
63
not supplied
68
69
66

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 51	1-638-730-11	LOADING MOTOR BOARD	
52	4-934-375-01	GEAR (LOADING B)	
53	4-934-381-01	GEAR (LOADING C)	
54	4-934-391-01	GEAR (LOADING A)	
* 55	4-951-619-01	CUSHION (A)	
56	4-924-412-01	SPRING (B), TENSION	
57	4-917-519-01	LEVER, SET	
58	X-4941-529-1	PULLEY ASSY	
59	4-944-490-01	BELT (TIMING)	
60	4-937-911-01	SPRING, TENSION	
61	4-933-134-01	SCREW (+PTPWH M2.6X6)	
62	4-958-593-01	SPRING (BU), COMPRESSION	
* 63	4-934-373-01	BRACKET (BU)	
64	1-537-645-11	JUMPER, FILM (WITH TERMINAL)	
* 65	A-4673-079-A	MAIN BOARD, COMPLETE (AEP, AUS)	
* 65	A-4673-080-A	MAIN BOARD, COMPLETE (E)	
* 66	4-951-933-01	SHEET, INSULATING (AEP, AUS)	
* 67	4-944-581-01	PLATE, GROUND	
* 68	4-944-178-01	SHEET (INSULATING)	
69	3-531-576-11	RIVET	
* 70	4-943-996-06	SPRING, LEAF	
* 71	1-638-731-11	OPEN/UP SW BOARD	
* 72	4-943-997-01	CHASSIS	
* 73	4-965-054-01	PANEL, BACK (AEP)	
* 73	4-965-054-11	PANEL, BACK (AUS)	
* 73	4-965-054-21	PANEL, BACK (E)	
* 74	3-703-244-00	BUSHING (2104), CORD (AEP, AUS)	
* 74	3-703-571-11	BUSHING (S)(4516), CORD (E)	
⚠75	1-574-358-31	CORD, POWER (WITH CONNECTOR)(AUS)	
⚠76	1-575-651-21	CORD, POWER (AEP)	
⚠77	1-696-027-11	CORD, POWER (E)	
⚠78	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
M702	A-4604-834-A	MOTOR ASSY, LOADING	
S701	1-572-713-11	SWITCH, PUSH (WITH CONNECTOR)(DOWN DET)	
⚠SW301	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (E)	
⚠T301	1-423-554-11	TRANSFORMER, POWER (AEP, AUS)	
⚠T301	1-423-555-11	TRANSFORMER, POWER (E)	

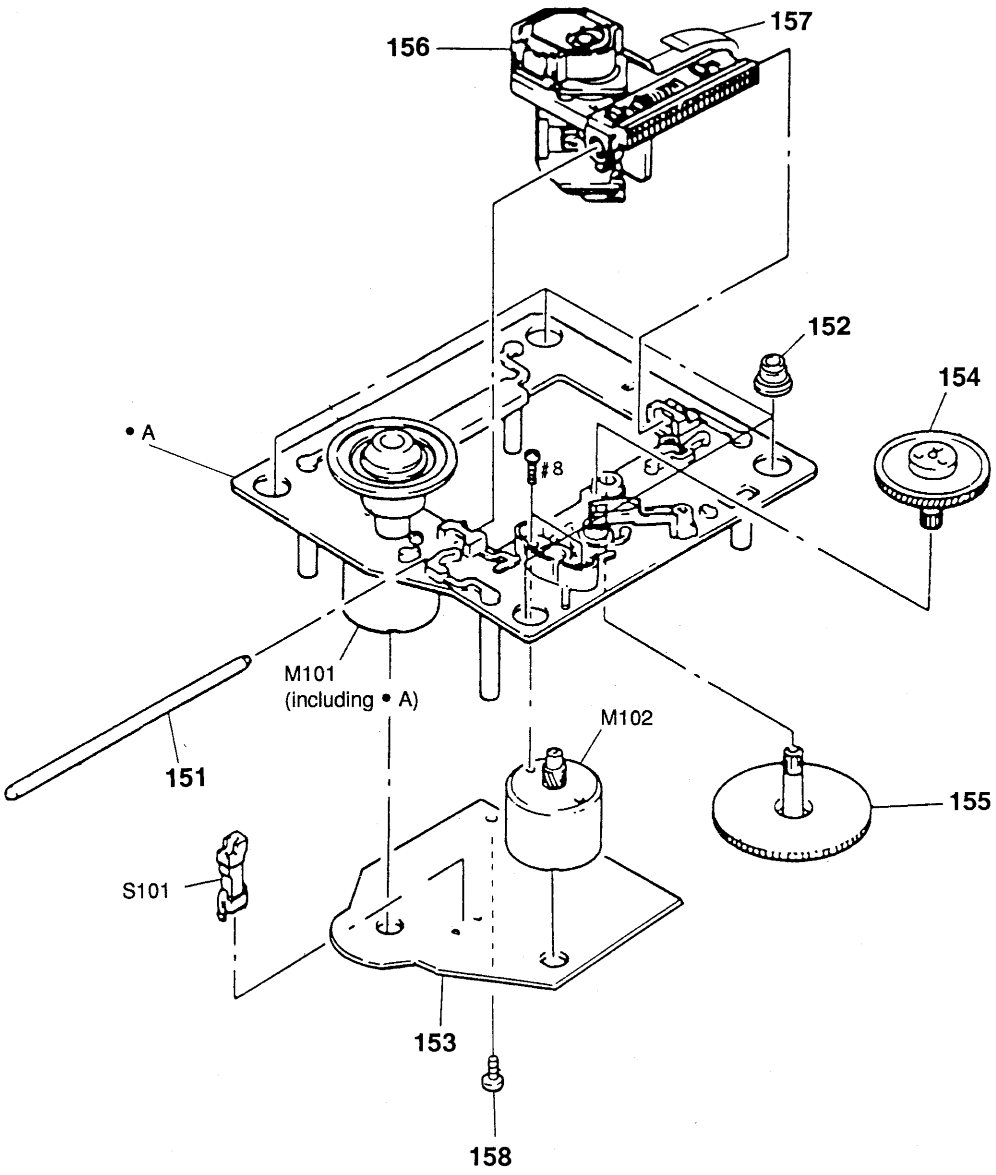
5-3. TRAY ASSEMBLY



# 6
101
106
104
105
102
# 2
103
not supplied
107
114
108
109
115
113
110
D701
111
M701
112
not supplied
# 1
# 1

Ref. No.	Part No.	Description	Remark
101	4-926-384-01	SCREW, STEP	
* 102	4-926-383-01	TABLE (B), DISK	
* 103	4-949-226-01	PLATE, LOCK	
* 104	4-930-506-02	BRACKET (PRESS PULLEY)	
105	4-926-395-01	SPRING, COMPRESSION	
* 106	1-452-538-11	MAGNET	
* 107	4-926-388-01	BRACKET (ADJUSTMENT)	
108	4-923-597-01	SCREW, STEP	
109	4-926-399-01	BELT	
* 110	4-944-160-91	TABLE (A), DISC	
111	1-590-849-11	WIRE, FLAT TYPE (5 CORE)	
* 112	1-638-729-11	TABLE MOTOR BOARD	
113	4-934-380-01	PULLEY (R)	
114	X-4924-457-1	ROLLER ASSY	
115	4-934-376-01	SHAFT (ROLLER)	
D701	8-719-970-19	DIODE GP1A521	
M701	A-4604-585-A	MOTOR ASSY, ROTARY (TABLE)	

5-4. OPTICAL PICK-UP BLOCK (BU-5BD13B)


156
157
152
154
• A
#8
M101
(including • A)
M102
151
155
S101
153
158

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
151	4-917-565-01	SHAFT, SLED	
152	4-951-940-01	INSULATOR (BU)	
* 153	A-4649-955-A	BD BOARD, COMPLETE	
154	4-917-567-01	GEAR (M)	
155	4-917-564-01	GEAR (P), FLATNESS	
⚠156	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
157	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

SECTION 6
ELECTRICAL PARTS LIST

BD

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- AUS : Australian model

Ref.No.	Part No.	Description			Remark
*	A-4649-955-A	BD BOARD, COMPLETE			
		******************			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C132	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C133	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C177	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C178	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C179	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C181	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C182	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C183	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C184	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C185	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C186	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C187	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C188	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C191	1-163-091-00	CERAMIC CHIP	8PF		50V
C192	1-163-091-00	CERAMIC CHIP	8PF		50V
C193	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C194	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C195	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C196	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C197	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref.No.	Part No.	Description			Remark
		< CONNECTOR >			
* CN101	1-580-875-11	SOCKET, CONNECTOR (SMT) 26P			
CN102	1-565-771-11	CONNECTOR, FPC (1.0MM)(ZIF)12P			
		< IC >			
IC101	8-752-361-90	IC CXD2515Q			
IC102	8-759-176-09	IC, BA6392FP			
IC103	8-752-367-61	IC CXD2565AM			
		< COIL >			
L101	1-414-234-11	INDUCTOR, FERRITE BEAD			
L102	1-414-234-11	INDUCTOR, FERRITE BEAD			
L103	1-414-234-11	INDUCTOR, FERRITE BEAD			
L104	1-216-001-00	METAL CHIP	10	5%	1/10W
L105	1-216-295-00	METAL CHIP	0	5%	1/10W
L106	1-414-234-11	INDUCTOR, FERRITE BEAD			
L107	1-216-295-00	METAL CHIP	0	5%	1/10W
L108	1-216-295-00	METAL CHIP	0	5%	1/10W
		< MOTOR >			
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)			
M102	X-4917-504-1	MOTOR ASSY (SLED)			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-00	METAL CHIP	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-00	METAL CHIP	1M	5%	1/10W
R110	1-216-025-00	METAL CHIP	100	5%	1/10W
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W
R122	1-216-295-00	METAL CHIP	0	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-00	METAL CHIP	100K	5%	1/10W
R125	1-216-049-00	METAL CHIP	1K	5%	1/10W
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W
R127	1-216-049-00	METAL CHIP	1K	5%	1/10W

BD | DISPLAY | KEY SW | LOADING MOTOR

Ref. No.	Part No.	Description	Remark
R131	1-216-037-00	METAL CHIP 330 5% 1/10W	
R158	1-216-111-00	METAL CHIP 390K 5% 1/10W	
R159	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R181	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R182	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R183	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R184	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R185	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R187	1-216-035-00	METAL CHIP 270 5% 1/10W	
R188	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R189	1-414-234-11	INDUCTOR, FERRITE BEAD	
		< SWITCH >	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
		< VIBRATOR >	
X101	1-579-904-11	VIBRATOR, CRYSTAL (33.8MHz)	

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Ref. No.	Part No.	Description	Remark
*	1-652-800-12	DISPLAY BOARD *************	
		< CONNECTOR >	
CN751	1-695-397-31	PIN, CONNECTOR (PC BOARD) 36P	
		< FLUORESCENT INDICATOR >	
FL751	1-519-721-11	INDICATOR TUBE, FLUORESCENT	
		< RESISTOR >	
R702	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R703	1-247-836-11	CARBON 1.6K 5% 1/4W	
R704	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R705	1-249-423-11	CARBON 3.3K 5% 1/4W	F
		< SWITCH >	
S701	1-554-303-21	SWITCH, TACTILE (TIME)	
S702	1-554-303-21	SWITCH, TACTILE (FADER)	
S703	1-554-303-21	SWITCH, TACTILE (EDIT)	
S704	1-554-303-21	SWITCH, TACTILE (CHECK)	
S705	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S751	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)	

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Ref. No.	Part No.	Description	Remark
*	A-4673-077-A	KEY SW BOARD, COMPLETE *********************	
		< RESISTOR >	
R712	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R713	1-247-836-11	CARBON 1.6K 5% 1/4W	
R714	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R715	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R716	1-249-426-11	CARBON 5.6K 5% 1/4W	
R717	1-247-856-00	CARBON 11K 5% 1/4W	
R718	1-249-435-11	CARBON 33K 5% 1/4W	
R722	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R723	1-247-836-11	CARBON 1.6K 5% 1/4W	
R724	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R725	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R726	1-249-426-11	CARBON 5.6K 5% 1/4W	
R727	1-247-856-00	CARBON 11K 5% 1/4W	
R732	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R733	1-247-836-11	CARBON 1.6K 5% 1/4W	
R734	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R735	1-249-423-11	CARBON 3.3K 5% 1/4W	F
		< SWITCH >	
S711	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)	
S712	1-554-303-21	SWITCH, TACTILE (DISC SKIP)	
S713	1-554-303-21	SWITCH, TACTILE (▶▶)	
S714	1-554-303-21	SWITCH, TACTILE (◀◀)	
S715	1-554-303-21	SWITCH, TACTILE (▷▷|)	
S716	1-554-303-21	SWITCH, TACTILE (|◁◁)	
S717	1-554-303-21	SWITCH, TACTILE (■)	
S718	1-554-303-21	SWITCH, TACTILE (❚❚)	
S721	1-554-303-21	SWITCH, TACTILE (▷)	
S722	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)	
S723	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)	
S724	1-554-303-21	SWITCH, TACTILE (REPEAT)	
S725	1-554-303-21	SWITCH, TACTILE (PROGRAM)	
S726	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S727	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S731	1-554-303-21	SWITCH, TACTILE (DISC 5)	
S732	1-554-303-21	SWITCH, TACTILE (DISC 4)	
S733	1-554-303-21	SWITCH, TACTILE (DISC 3)	
S734	1-554-303-21	SWITCH, TACTILE (DISC 2)	
S735	1-554-303-21	SWITCH, TACTILE (DISC 1)	

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Ref. No.	Part No.	Description	Remark
*	1-638-730-11	LOADING MOTOR BOARD ******************	
		< CAPACITOR >	
C705	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
		< MOTOR >	
M702	A-4604-834-A	MOTOR ASSY, LOADING	

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Ref. No.	Part No.	Description	Remark
*	A-4673-079-A	MAIN BOARD, COMPLETE (AEP, AUS) *******************************	
*	A-4673-080-A	MAIN BOARD, COMPLETE (E) ************************	
	7-682-548-04	SCREW +BVTT 3X8 (S)	
		< CAPACITOR >	
C301	1-124-887-00	ELECT 3300uF 20% 16V	
C302	1-124-360-00	ELECT 1000uF 20% 16V	
C303	1-161-494-00	CERAMIC 0.022uF 25V	
C304	1-124-572-11	ELECT 100uF 20% 63V	
C305	1-126-059-11	ELECT 10uF 20% 50V	
C307	1-126-163-11	ELECT 4.7uF 20% 50V	
C308	1-124-472-11	ELECT 470uF 20% 10V	
C309	1-126-101-11	ELECT 100uF 20% 16V	
C312	1-124-472-11	ELECT 470uF 20% 10V	
C315	1-126-163-11	ELECT 4.7uF 20% 50V	
C316	1-124-910-11	ELECT 47uF 20% 50V	
C321	1-126-022-11	ELECT 47uF 20% 16V	
C322	1-161-494-00	CERAMIC 0.022uF 25V	
C323	1-161-494-00	CERAMIC 0.022uF 25V	
C327	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C328	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C329	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C341	1-126-022-11	ELECT 47uF 20% 16V	
C361	1-161-494-00	CERAMIC 0.022uF 25V	
C366	1-162-282-31	CERAMIC 100PF 10% 50V	
C371	1-162-282-31	CERAMIC 100PF 10% 50V	
C372	1-162-282-31	CERAMIC 100PF 10% 50V	
C373	1-162-282-31	CERAMIC 100PF 10% 50V	
C374	1-162-282-31	CERAMIC 100PF 10% 50V	
C375	1-106-359-00	MYLAR 4700PF 5% 200V	
C376	1-106-359-00	MYLAR 4700PF 5% 200V	
C377	1-130-472-00	MYLAR 0.0012uF 5% 50V	
C378	1-130-472-00	MYLAR 0.0012uF 5% 50V	
C379	1-124-443-00	ELECT 100uF 20% 10V	
C380	1-124-443-00	ELECT 100uF 20% 10V	
C381	1-162-291-31	CERAMIC 560PF 10% 50V	
C382	1-162-291-31	CERAMIC 560PF 10% 50V	
C383	1-126-022-11	ELECT 47uF 20% 16V	
C384	1-126-022-11	ELECT 47uF 20% 16V	
		< CONNECTOR >	
CN301	1-695-397-31	PIN, CONNECTOR (PC BOARD) 36P	
* CN303	1-568-943-11	PIN, CONNECTOR 5P	
CN305	1-750-997-11	CONNECTOR, FFC/FPC 5P	
CN306	1-764-415-11	CONNECTOR, FFC/FPC 26P	
* CN311	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)	
* CN312	1-573-047-11	PIN, CONNECTOR (PC BOARD) 2P	

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D301	8-719-200-82	DIODE 11ES2	
D302	8-719-200-82	DIODE 11ES2	
D303	8-719-200-82	DIODE 11ES2	
D304	8-719-200-82	DIODE 11ES2	
D305	8-719-200-82	DIODE 11ES2	
D306	8-719-110-13	DIODE RD9.1ESB2	
D311	8-719-109-89	DIODE RD5.6ESB2	
D321	8-719-987-63	DIODE 1N4148M	
D341	8-719-109-89	DIODE RD5.6ESB2	
D351	8-719-109-89	DIODE RD5.6ESB2	
		< IC >	
IC301	8-759-633-42	IC M5293L	
IC302	8-759-061-65	IC LA5602	
IC304	8-759-805-37	IC L78LR05D	
IC305	8-759-605-00	IC M5F78M07L	
IC321	8-752-854-58	IC CXP82316-038Q	
IC341	8-759-172-31	IC BA6191	
IC371	8-759-145-58	IC UPC4558C	
IC371	8-759-989-89	IC BA4558N	
IC372	8-759-145-58	IC UPC4558C	
IC372	8-759-989-89	IC BA4558N	
		< JACK >	
J301	1-569-442-11	JACK, PIN 2P (LINE OUT)	
		< TRANSISTOR >	
Q301	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q321	8-729-900-89	TRANSISTOR DTC144ES	
Q322	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q351	8-729-900-65	TRANSISTOR DTA144ES	
Q352	8-729-900-65	TRANSISTOR DTA144ES	
Q353	8-729-900-65	TRANSISTOR DTA144ES	
Q354	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q355	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q357	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q358	8-729-231-55	TRANSISTOR 2SC2878-AB	
		< RESISTOR >	
R301	1-249-429-11	CARBON 10K 5% 1/4W	
R302	1-249-438-11	CARBON 56K 5% 1/4W	
R303	1-249-435-11	CARBON 33K 5% 1/4W	
R321	1-249-429-11	CARBON 10K 5% 1/4W	
R322	1-249-429-11	CARBON 10K 5% 1/4W	
R323	1-249-417-11	CARBON 1K 5% 1/4W	F
R324	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R325	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R327	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R328	1-249-428-11	CARBON 8.2K 5% 1/4W	F

MAIN | OPEN/UP SW | TABLE MOTOR

Ref. No.	Part No.	Description				Remark
R329	1-249-428-11	CARBON	8.2K	5%	1/4W	F
R330	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R331	1-247-834-11	CARBON	1.3K	5%	1/4W	
R332	1-249-441-11	CARBON	100K	5%	1/4W	
R333	1-249-417-11	CARBON	1K	5%	1/4W	F
R334	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R335	1-249-429-11	CARBON	10K	5%	1/4W	
R336	1-249-429-11	CARBON	10K	5%	1/4W	
R337	1-249-393-11	CARBON	10	5%	1/4W	F
R338	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R339	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R340	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R341	1-247-876-11	CARBON	75K	5%	1/4W	
R342	1-247-876-11	CARBON	75K	5%	1/4W	
R343	1-247-876-11	CARBON	75K	5%	1/4W	
R344	1-247-876-11	CARBON	75K	5%	1/4W	
R345	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R346	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R347	1-249-415-11	CARBON	680	5%	1/4W	F
R348	1-247-834-11	CARBON	1.3K	5%	1/4W	
R351	1-249-441-11	CARBON	100K	5%	1/4W	
R352	1-249-441-11	CARBON	100K	5%	1/4W	
R353	1-249-441-11	CARBON	100K	5%	1/4W	
R355	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R356	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R357	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R358	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R359	1-249-417-11	CARBON	1K	5%	1/4W	F
R360	1-249-417-11	CARBON	1K	5%	1/4W	F
R362	1-249-417-11	CARBON	1K	5%	1/4W	F
R363	1-249-417-11	CARBON	1K	5%	1/4W	F
R365	1-249-417-11	CARBON	1K	5%	1/4W	F
R366	1-249-417-11	CARBON	1K	5%	1/4W	F
R367	1-249-417-11	CARBON	1K	5%	1/4W	F
R368	1-249-417-11	CARBON	1K	5%	1/4W	F
R370	1-249-390-11	CARBON	5.6	5%	1/6W	F
R371	1-247-852-11	CARBON	7.5K	5%	1/4W	
R372	1-247-852-11	CARBON	7.5K	5%	1/4W	
R373	1-247-852-11	CARBON	7.5K	5%	1/4W	
R374	1-247-852-11	CARBON	7.5K	5%	1/4W	
R375	1-247-864-11	CARBON	24K	5%	1/4W	
R376	1-247-864-11	CARBON	24K	5%	1/4W	
R377	1-247-864-11	CARBON	24K	5%	1/4W	
R378	1-247-864-11	CARBON	24K	5%	1/4W	
R379	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R380	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R381	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R382	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R383	1-249-441-11	CARBON	100K	5%	1/4W	
R384	1-249-441-11	CARBON	100K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R385	1-249-417-11	CARBON	1K	5%	1/4W	F
R386	1-249-417-11	CARBON	1K	5%	1/4W	F
R387	1-247-807-31	CARBON	100	5%	1/4W	
R388	1-247-807-31	CARBON	100	5%	1/4W	
R389	1-247-807-31	CARBON	100	5%	1/4W	
R390	1-247-807-31	CARBON	100	5%	1/4W	
		< SWITCH >				
⚠SW301	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (E)				
		< TRANSFORMER >				
⚠T301	1-423-554-11	TRANSFORMER, POWER (AEP, AUS)				
⚠T301	1-423-555-11	TRANSFORMER, POWER (E)				
		< VIBRATOR >				
X321	1-579-175-11	VIBRATOR, CERAMIC (10MHz)				

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Ref. No.	Part No.	Description				Remark
*	1-638-731-11	OPEN/UP SW BOARD ****************				
		< CONNECTOR >				
CN705	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P				
		< SWITCH >				
S702	1-571-300-21	SWITCH, ROTARY (OPEN/UP DET)				

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Ref. No.	Part No.	Description				Remark
*	1-638-729-11	TABLE MOTOR BOARD *****************				
		< CAPACITOR >				
C704	1-161-375-00	CERAMIC	0.0022uF	20%	50V	
		< CONNECTOR >				
* CN707	1-573-044-11	SOCKET, CONNECTOR 5P				
		< DIODE >				
D701	8-719-970-19	DIODE GP-1A521				
		< MOTOR >				
M701	A-4604-585-A	MOTOR ASSY, ROTARY (TABLE)				
		< RESISTOR >				
R701	1-249-416-11	CARBON	820	5%	1/4W	F

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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MISCELLANEOUS
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Ref.No.	Part No.	Description	Remark
5	1-765-431-11	WIRE (FLAT TYPE)(36 CORE)	
64	1-537-645-11	JUMPER, FILM (WITH TERMINAL)	
⚠75	1-574-358-31	CORD, POWER (WITH CONNECTOR)(AUS)	
⚠76	1-575-651-21	CORD, POWER (AEP)	
⚠77	1-696-027-11	CORD, POWER (E)	
⚠78	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
* 106	1-452-538-11	MAGNET	
111	1-590-849-11	WIRE, FLAT TYPE (5 CORE)	
⚠156	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
157	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
D701	8-719-970-19	DIODE GP1A521	
FL751	1-519-721-11	INDICAOR TUBE, FLUORESCENT	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M701	A-4604-585-A	MOTOR ASSY, ROTARY (TABLE)	
M702	A-4604-834-A	MOTOR ASSY, LOADING	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
S701	1-572-713-11	SWITCH, PUSH (WITH CONNECTOR)(DOWN DET)	
⚠SW301	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (E)	
⚠T301	1-423-554-11	TRANSFORMER, POWER (AEP, AUS)	
⚠T301	1-423-555-11	TRANSFORMER, POWER (E)	

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ACCESSORIES & PACKING MATERIALS
****

Ref.No.	Part No.	Description	Remark
	1-558-271-11	CORD, CONNECTION (AUDIO 108CM)(AEP)	
*	3-681-263-11	SADDLE, WIRE (AEP)	
	3-758-344-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, ITALIAN, PORTUGUESE)(AEP)	
	4-944-040-01	CUSHION (FRONT)	
	4-944-041-01	CUSHION (REAR)	
*	4-958-814-01	CUSHION (FRONT)(AEP)	
*	4-958-815-01	CUSHION (REAR)(AEP)	
*	4-965-446-01	INDIVIDUAL CARTON (AEP)	

****

****
HARDWARE LIST
****

Ref.No.	Part No.	Description	Remark
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-647-79	SCREW, TAPPING	
#3	7-682-961-01	SCREW +PSW 4X8	
#4	7-685-136-19	SCREW +P 2.6X12 TYPE2 NON-SLIT	
#5	7-682-548-04	SCREW +BVTT 3X8 (S)	
#6	7-682-554-04	SCREW +B 3X25	
#7	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

560
9-959-~~478~~-11

Sony Corporation
Audio Group

English
94C0968-1
Printed in Japan
©1994. 3
Published by Audio Sector Quality Assurance Dept.

CDP-C433M

SONY
SERVICE MANUAL

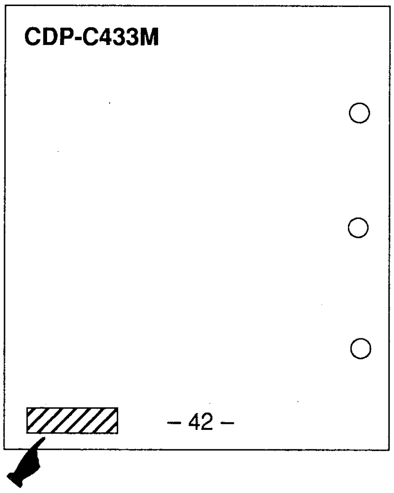
AEP Model
E Model
Australian Model

CORRECTION-1

Correct your service manual as shown below.

☛ : indicates corrected portion.

Page	INCORRECT	CORRECT
42	Part No. **9-959-478-11**	Part No. **9-959-560-11** ☛



9-959-560-91

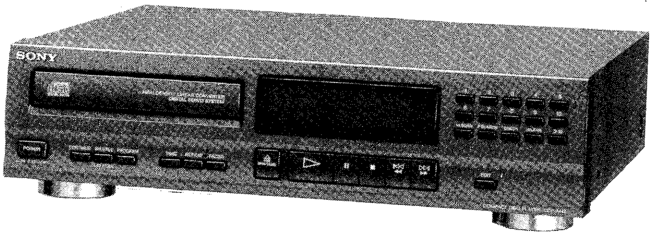
Sony Corporation
Consumer A&V Products Company
Home A&V Division

English
94D0968-1
Printed in Japan
© 1994.4
Published by Home A&V Div. Quality Engineering Dept.

CDP-M46

SERVICE MANUAL

AEP Model
E Model



CDP-M46 is the Compact Disc
Player section in LBT-A590/A790.

Model Name Using Similer Mechanism	CDP-M201/M301
CD Mechanism Type	CDM14-5BD10
Base Unit Type	BU-5BD10B
Optical Pick-up Type	KSS-240A

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser
Wavelength	780 - 790 nm
Frequency response	2 Hz to 20 kHz (± 0.5 dB)
Signal-to-noise ratio	More than 100 dB
Dynamic range	More than 97 dB
Harmonic distortion	Less than 0.004 % (1 kHz)
Channel separation	More than 95 dB (1 kHz)
Output	LINE OUT (phono jacks) Output level 2 V (at 50 kohms) Load impedance over 10 kohms
Power requirements	AEP model : 220 — 230V AC, 50/60Hz E, Saudi Arabia model : 110 — 120, 220 —240V AC, adjustable 50/60Hz
Power consumption	10 W
Weight	Approx. 2.8 kg (6 lbs 3 oz)
Dimensions	Approx. 355 x 95 x 320 mm (14 x 3 $^{3}/_{4}$ x 12 $^{5}/_{8}$ inches) (w/h/d, including projections)
Supplied accessory	Audio connecting cord (1)

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER

SONY®

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

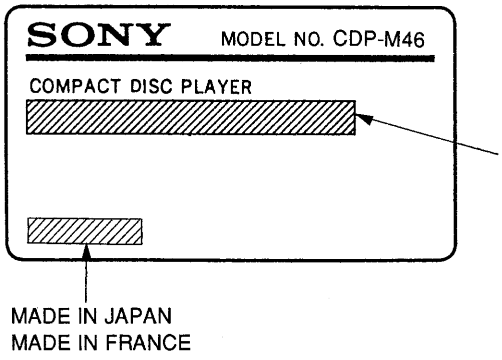
Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside of the unit.

CAUTION	; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	; USYNLIG LASERSTRALING VED ABNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDS ÆTTELSE FOR STRALING.
VARO!	; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING	; LASERSTRALING NÄR DENNA DEL ÄR OPPNAD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	; USYNLIG LASERSTRALING NAR DEKSEL APNES UNNGA EKSPONERING FOR STRALEN.

MODEL IDENTIFICATION

— Specification Label —



AEP model : AC220 — 230V~50/60Hz, 10W
E, Saudi Arabia model : AC110 — 120, 220 — 240V~50/60Hz, 10W

MADE IN JAPAN
MADE IN FRANCE

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Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICING NOTE

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repain parts.
The flexible board is easily damaged and should be handled with care.

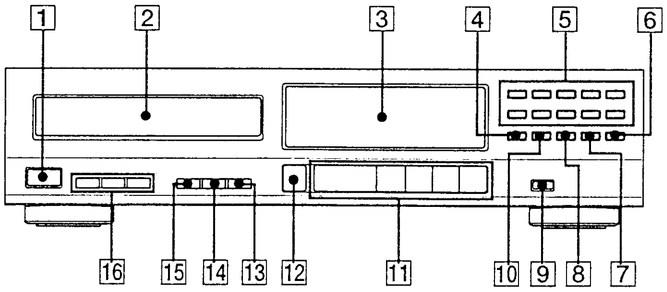
NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

SECTION 2
GENERAL

This section is extracted from instruction manual.

D

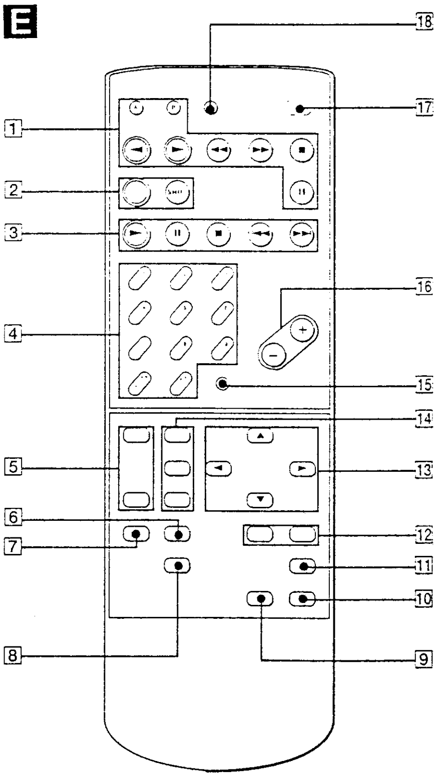


CD Player **D**

1 POWER switch (18)
2 Disc tray
3 Display window
4 MUSIC SCAN button (58)
5 Numeric buttons (58)
6 > 10 (over 10) button (58)
7 CLEAR button (66, 74)
8 CHECK button (66)
9 EDIT button (76, 78)
10 P. SEARCH button (84)
11 CD operation buttons
⏮ ◀◀/▶▶ ⏭ AMS*,
■ stop, ❚❚ pause, ▶ play
12 ⏏ OPEN/CLOSE button (54)
13 FADER button (82)
14 REPEAT button (68)
15 TIME button (56)
16 Play mode buttons
CONTINUE, SHUFFLE, PROGRAM

* AMS is the abbreviation of Automatic Music Sensor.

E



Remote commander (RM-S521)

E

1 Cassette deck operation buttons
When the remote commander is not in cassette deck control mode, press the TAPE DECK A or B button and then operate these buttons.

2 Tuner operation buttons
When the remote commander is not in tuner control mode, press the TUNER button and then select the preset station with the SHIFT button and numeric button (1 - 0 (10)).

3 CD player operation buttons
When the remote commander is not in CD player control mode, press the ► button and then operate these buttons.

4 Numeric buttons
In tuner control mode: Used to select the preset station number (1 - 0 (10)).
In CD player control mode: Used to directly locate a selection (1 - 10 and >10). The >10 button is used to specify selection number 11 or above. (58)
In amplifier control mode: Used to select a sound pattern among the SELECT 5 settings (HALL, DANCE, MOVIE, WM and CAR) or your individual sound setting (1 - 5) stored in PERSONAL FILE.
Press 1-5 while pressing the SELECT 5 or PERSONAL FILE button.

5 VIDEO/MD and PHONO function selectors

6 SOURCE DIRECT button (88)

7 PROGRAM FUNCTION button (122)

8 DISPLAY button (94)
This button functions only in amplifier control mode.

9 ● REC button
Press to enter recording pause mode.

10 O REC MUTE button

11 DYNAMIC BASS button (20)

12 SURROUND MODE and LEVEL buttons (86)

13 CURSOR CONTROL buttons (88, 90, 96, 98)

14 SELECT 5 button (88)
PERSONAL FILE (1–5) button (98)
EQ button (90)

15 DISC SKIP button
Functions only for CDP-C433M.

16 VOLUME control buttons (20)

17 SYSTEM POWER button (18)

18 SLEEP button (114)

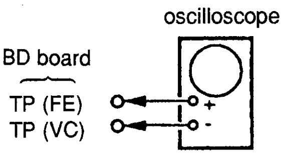
SECTION 3

ELECTRICAL BLOCK CHECKING

Note :

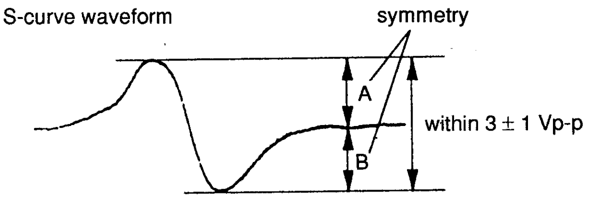
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal lever is low than specified value with the following checks.

S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

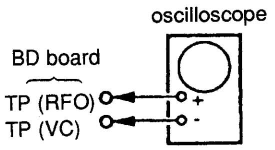


6. After check, remove the lead wire connected in step 2.

Note :

- Try to mesure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

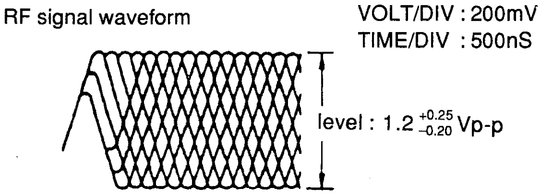


Procedure :

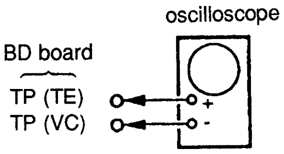
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

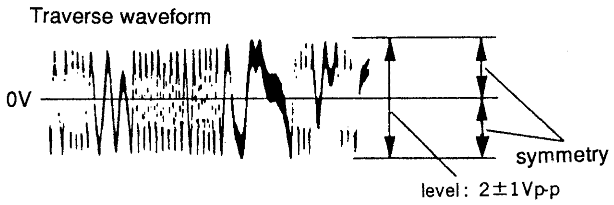


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI) to TP (VC) with lead wire.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

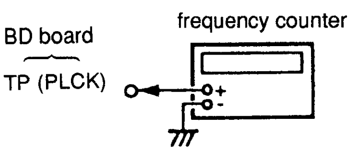


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

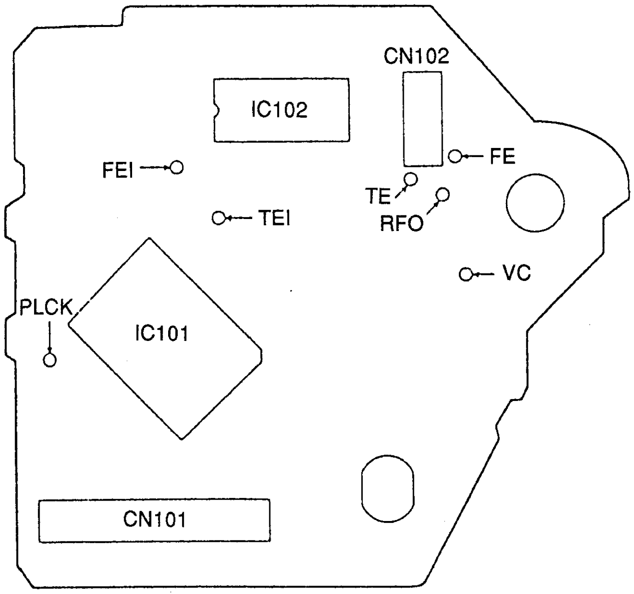
1. Connect frequency counter to test point (PLCK) with lead wire.



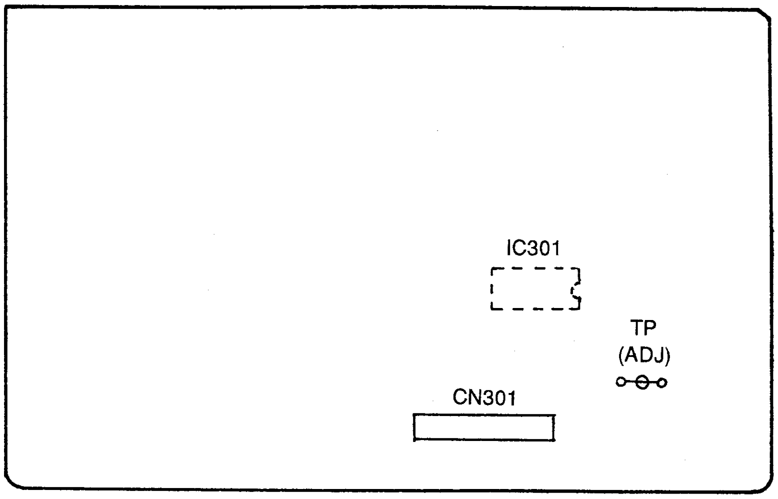
2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Component Side —

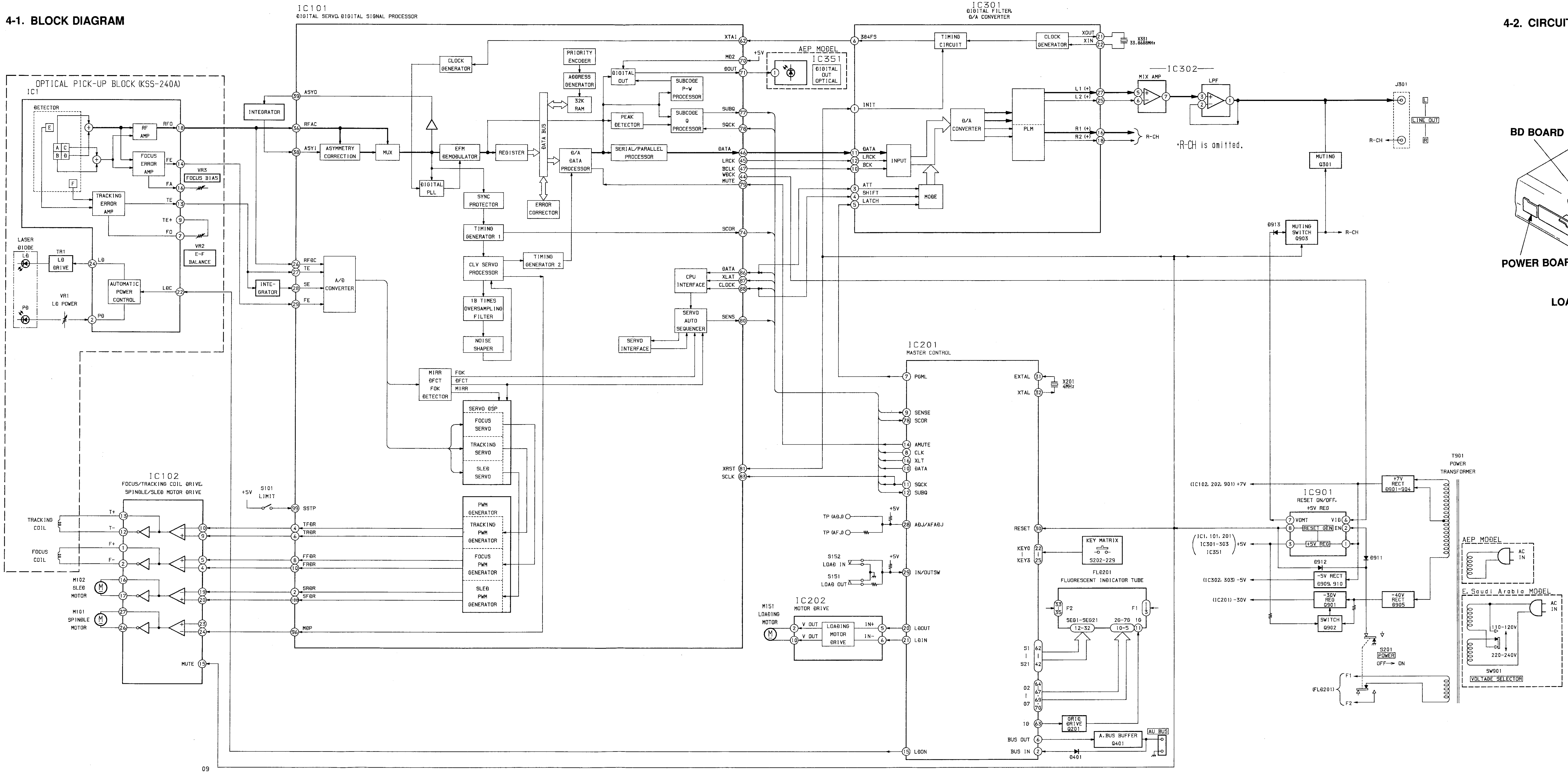

CN102
IC102
FE
FEI
TE
RFO
TEI
VC
PLCK
IC101
CN101

[MAIN BOARD] — Component Side —

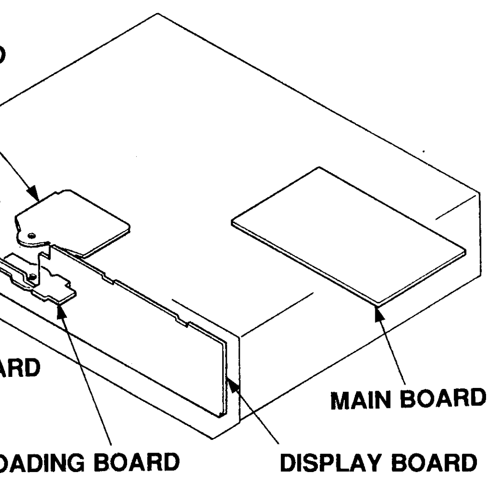

IC301
TP
(ADJ)
CN301

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM


IC101
DIGITAL SERVO, DIGITAL SIGNAL PROCESSOR
OPTICAL PICK-UP BLOCK (KSS-240A)
IC1
DETECTOR
RF AMP
FOCUS ERROR AMP
TRACKING ERROR AMP
RFO
FE
FA
TE
TE+
FO
VR3 FOCUS BIAS
VR2 E-F BALANCE
LASER DIODE
LD
TR1 LD DRIVE
AUTOMATIC POWER CONTROL
VR1 LD POWER
PD
LDC
INTEGRATOR
INTE-GRATOR
ASYO
RFAC
ASYI
ASYMMETRY CORRECTION
MUX
EFM DEMODULATOR
DIGITAL PLL
CLOCK GENERATOR
REGISTER
DATA BUS
SYNC PROTECTOR
TIMING GENERATOR 1
TIMING GENERATOR 2
CLV SERVO PROCESSOR
18 TIMES OVERSAMPLING FILTER
NOISE SHAPER
PRIORITY ENCODER
ADDRESS GENERATOR
32K RAM
ERROR CORRECTOR
D/A DATA PROCESSOR
DIGITAL OUT
PEAK DETECTOR
SUBCODE P-W PROCESSOR
SUBCODE Q PROCESSOR
SERIAL/PARALLEL PROCESSOR
A/D CONVERTER
RFDC
TE
SE
FE
CPU INTERFACE
SERVO AUTO SEQUENCER
SERVO INTERFACE
MIRR DFCT FOK DETECTOR
FOK
DFCT
MIRR
SERVO DSP
FOCUS SERVO
TRACKING SERVO
SLED SERVO
PWM GENERATOR
TRACKING PWM GENERATOR
FOCUS PWM GENERATOR
SLED PWM GENERATOR
XTAI
MD2
+5V
DOUT
SUBQ
SQCK
DATA
LRCK
BCLK
WDCK
MUTE
SCOR
DATA
XLAT
CLOCK
SENS
XRST
SCLK
SSTP
TFDR
TRDR
FFDR
FRDR
SRDR
SFDR
MDP
+5V
S101 LIMIT
AEP MODEL
IC351
DIGITAL OUT OPTICAL
IC301
DIGITAL FILTER, D/A CONVERTER
384FS
TIMING CIRCUIT
CLOCK GENERATOR
XOUT
XIN
X351 33.8688MHz
INIT
DATA
LRCK
BCK
INPUT
D/A CONVERTER
PLM
ATT
SHIFT
LATCH
MODE
L1 (+)
L2 (+)
R1 (+)
R2 (+)
R-CH
IC302
MIX AMP
LPF
• R-CH is omitted.
J301
LINE OUT
L
R
R-CH
MUTING Q301
MUTING SWITCH Q903
D913
IC102
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
T+
T-
F+
F-
TRACKING COIL
FOCUS COIL
M102 SLED MOTOR
M101 SPINDLE MOTOR
MUTE
IC201
MASTER CONTROL
PGML
SENSE
SCOR
AMUTE
CLK
XLT
DATA
SQCK
SUBQ
ADJ/AFADJ
IN/OUTSW
LOOUT
LOIN
LDON
EXTAL
XTAL
X201 4MHz
RESET
KEY0 | KEY3
KEY MATRIX S202-229
FL0201 FLUORESCENT INDICATOR TUBE
F2
F1
SEG1-SEG21
12-32
2G-7G 1G
10-5
11
S1 | S21
G2 | G7
1G
GRID DRIVE Q201
BUS OUT
BUS IN
A.BUS BUFFER Q401
AU BUS
D401
TP (ADJ)
TP (AFJ)
S152 LOAD IN
S151 LOAD OUT
IC202
MOTOR DRIVE
M151 LOADING MOTOR
V OUT
LOADING MOTOR DRIVE
IN+
IN-
T901 POWER TRANSFORMER
(IC102, 202, 901) +7V
+7V RECT D901-904
IC901
RESET ON/OFF, +5V REG
VDMT
VIG
RESET GEN
EN
+5V REG
(IC1, 101, 201 IC301-303 IC351) +5V
D912
D911
(IC302, 303) -5V
-5V RECT D909, 910
(IC201) -30V
-30V REG Q901
-40V RECT D905
SWITCH Q902
S201 POWER
OFF → ON
(FL0201)
F1
F2
AEP MODEL
AC IN
E, Saudi Arabia MODEL
110-120V
220-240V
SW901 VOLTAGE SELECTOR
09

4-2. CIRCUIT BOARDS LOCATION

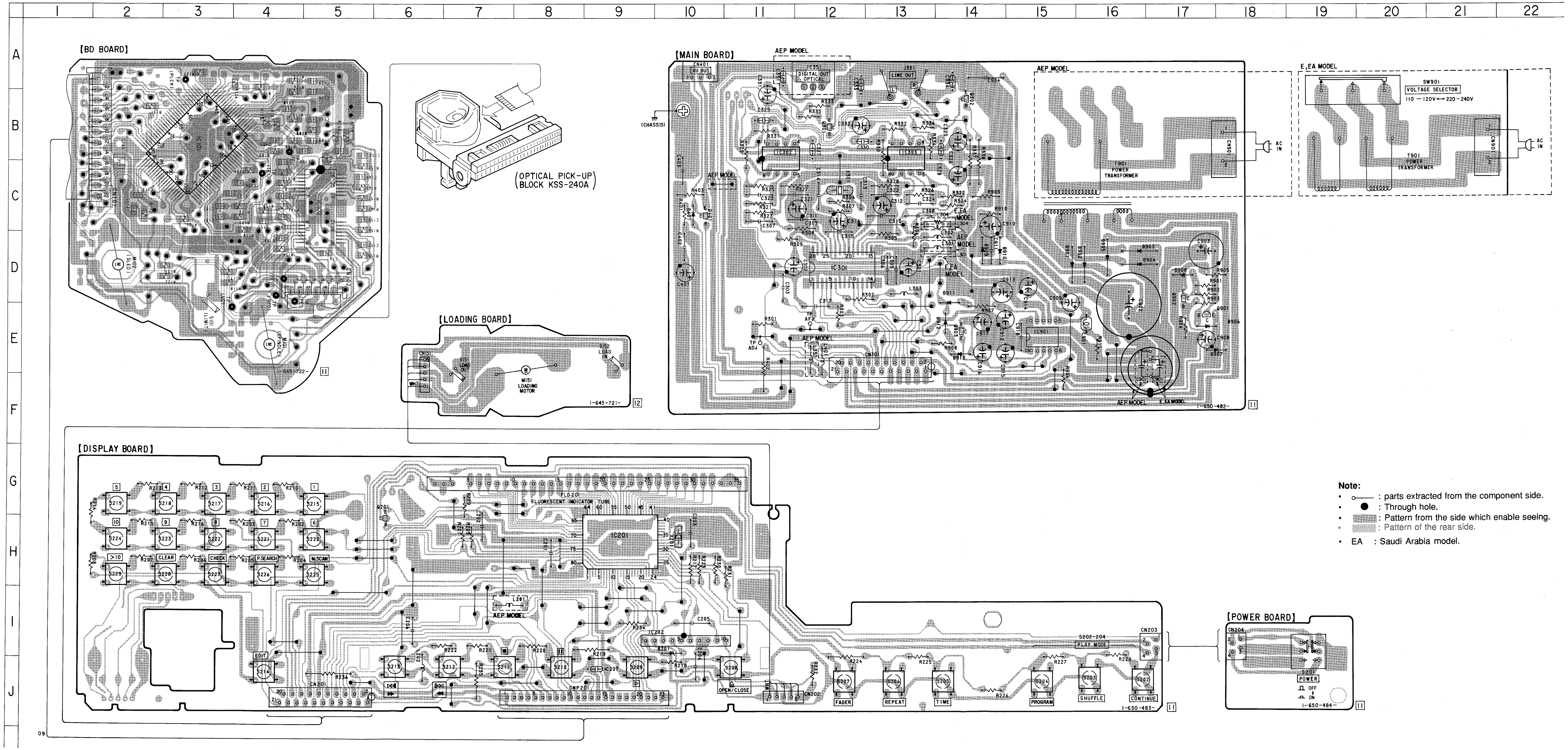

BD BOARD
POWER BOARD
MAIN BOARD
LOADING BOARD
DISPLAY BOARD

4-3. PRINTED WIRING BOARDS

- See page 18 for Semiconductor Lead Layouts.
- See page 9 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D201	I-10
D401	C-10
D901	D-15
D902	D-16
D903	D-16
D904	D-16
D905	D-16
D906	E-17
D907	E-18
D908	D-17
D909	D-14
D910	D-14
D911	E-14
D912	E-14
D913	E-14
IC201	H-9
IC202	I-10
IC301	D-12
IC302	B-11
IC303	B-13
IC351	K-12
IC901	E-15
Q201	H-6
Q301	B-12
Q302	B-14
Q401	C-10
Q901	E-17
Q902	D-17
Q903	E-14

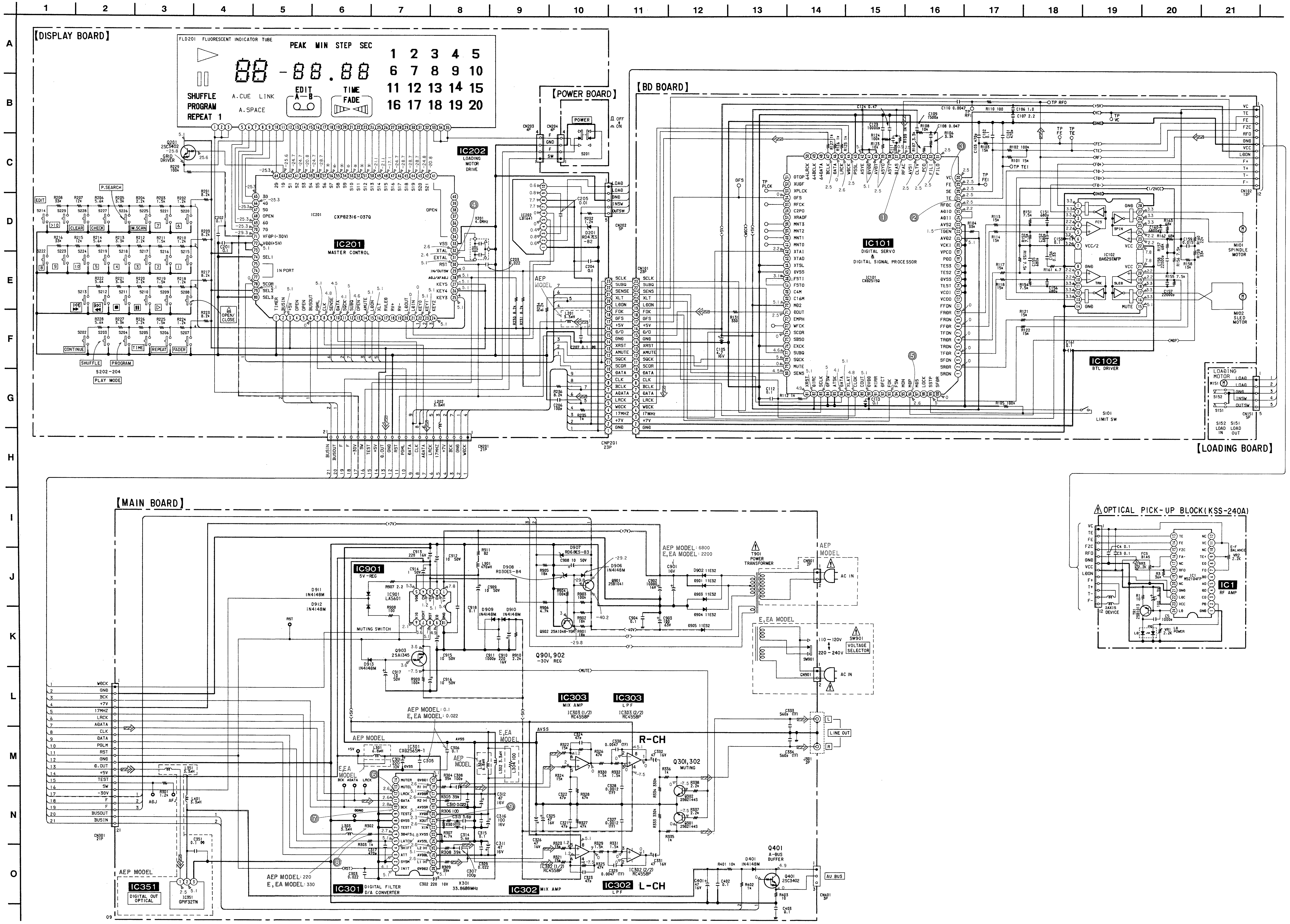

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
J
[BD BOARD]
IC101
M102 (SLED)
M101 (SPINDLE)
S101 (LIMIT)
1-645-722-
11
OPTICAL PICK-UP BLOCK KSS-240A
[LOADING BOARD]
CN151
S151 LOAD OUT
S152 LOAD IN
M151 LOADING MOTOR
1-645-721-
12
[MAIN BOARD]
AEP MODEL
CN401 AU BUS
IC351 DIGITAL OUT OPTICAL
J301 LINE OUT
(CHASSIS)
IC302
IC303
IC301
IC901
CN301
E,EA MODEL
TP AFX
TP ADJ
T901 POWER TRANSFORMER
CN901
AC IN
SW901 VOLTAGE SELECTOR
110 − 120V ←→ 220−240V
E,EA MODEL
1-650-482-
11
[DISPLAY BOARD]
FL201 FLUORESCENT INDICATOR TUBE
IC201
IC202
L201
AEP MODEL
CN201
CNP201
CN202
CN203
S202-204 PLAY MODE
EDIT
CLEAR
CHECK
P.SEARCH
M.SCAN
OPEN/CLOSE
FADER
REPEAT
TIME
PROGRAM
SHUFFLE
CONTINUE
1-650-483-
11
[POWER BOARD]
CN204
S201 POWER
OFF
ON
1-650-484-
11
09

Note:

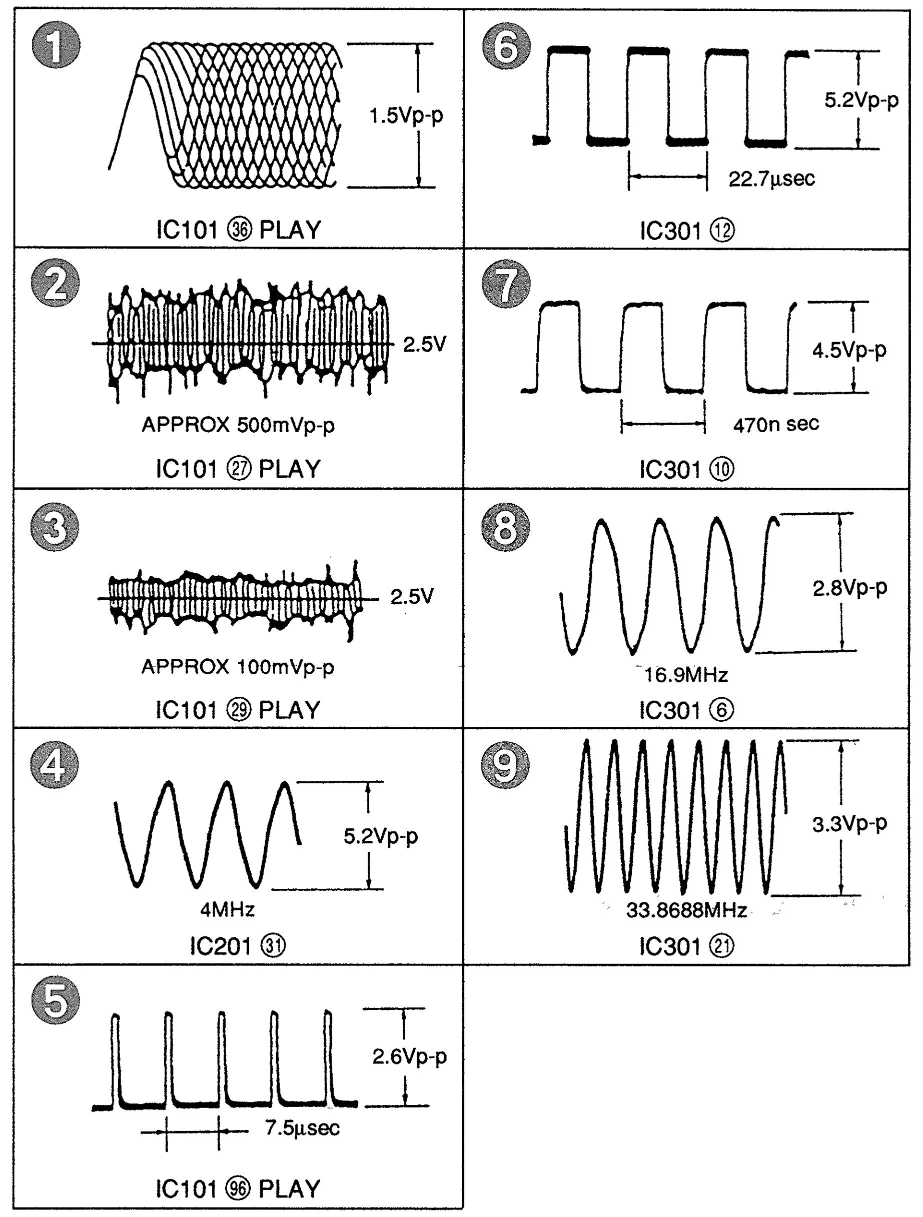
- o—— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enable seeing.
- ▨ : Pattern of the rear side.
- EA : Saudi Arabia model.

4-4. SCHEMATIC DIAGRAM

- See page 17, 18 for IC Block Diagrams.
- See page 19 to 22 for IC Pin Functions. (IC101, IC201)


[DISPLAY BOARD]
[POWER BOARD]
[BD BOARD]
[LOADING BOARD]
[MAIN BOARD]
OPTICAL PICK-UP BLOCK (KSS-240A)
FL201 FLUORESCENT INDICATOR TUBE
IC201 MASTER CONTROL
IC202 LOADING MOTOR DRIVE
IC101 DIGITAL SERVO & DIGITAL SIGNAL PROCESSOR
IC102 BTL DRIVER
IC1 RF AMP
IC901 5V REG
IC301 DIGITAL FILTER D/A CONVERTER
IC302 MIX AMP
IC302 LPF
IC303 MIX AMP
IC303 LPF
IC351 DIGITAL OUT OPTICAL
Q401 A-BUS BUFFER
Q901, 902 -30V REG
Q301, 302 MUTING
R-CH
L-CH
M101 SPINDLE MOTOR
M102 SLED MOTOR
M151 LOADING MOTOR
S101 LIMIT SW
T901 POWER TRANSFORMER
SW901 VOLTAGE SELECTOR
AC IN
LINE OUT
AU BUS
AEP MODEL
E, EA MODEL

- **Waveforms**



Note:

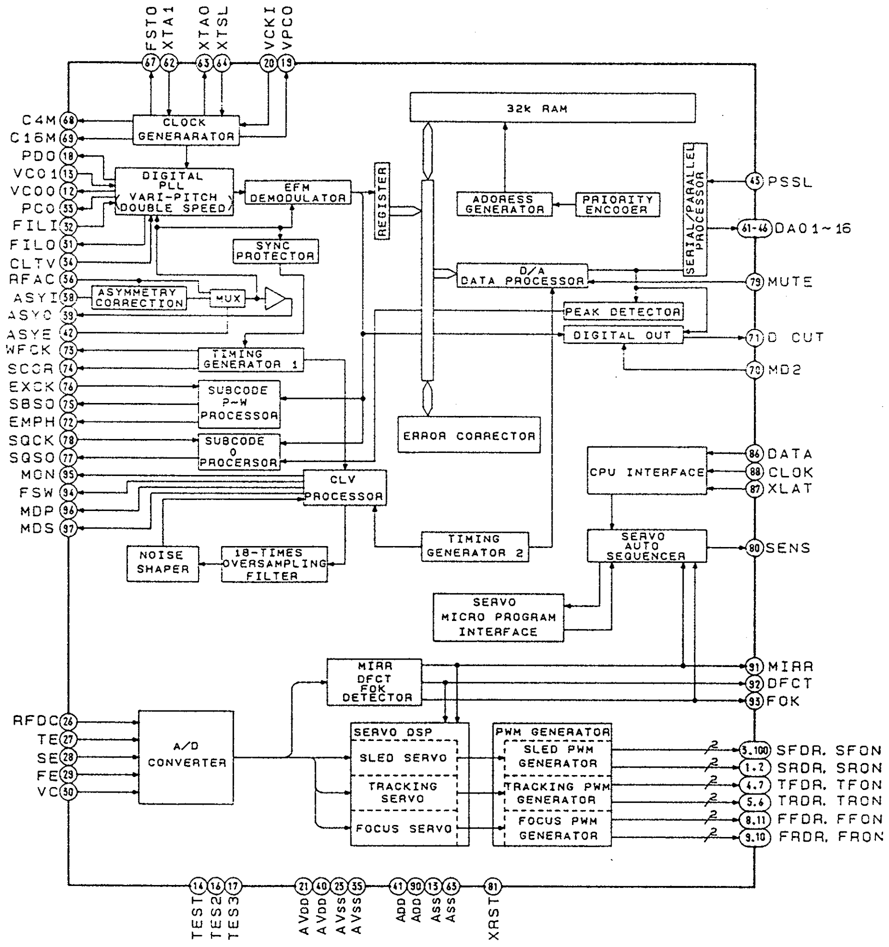
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- Δ : internal component.
- ☐ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

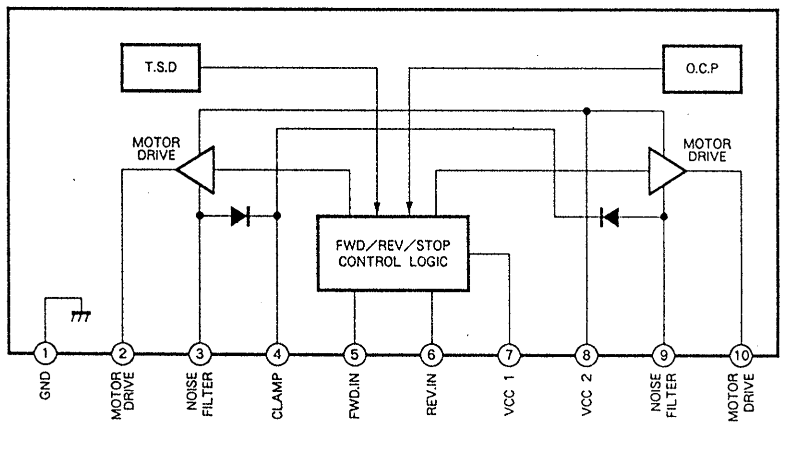
- ▬▬ : B+ Line
- ▪▪▪▪▪ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇛ : digital out
- EA : Saudi Arabia model.

4-5. IC BLOCK DIAGRAMS

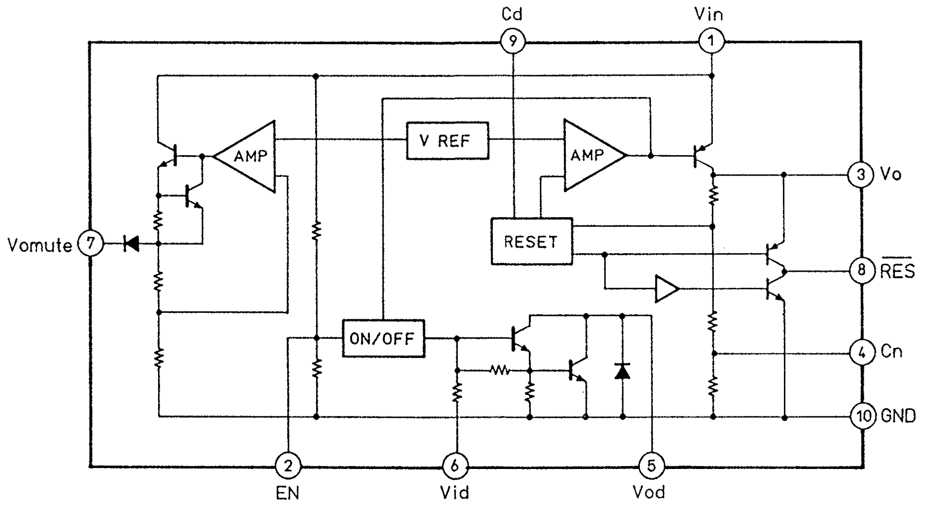
IC101 CXD2515Q


FSTO
XTA1
XTAO
XTSL
VCKI
VPCO
67
62
63
64
20
19
C4M 68
C16M 69
PDO 18
VCO1 13
VCOO 12
PCO 33
FILI 32
FILO 31
CLTV 34
RFAC 36
ASYI 38
ASYO 39
ASYE 42
WFCK 73
SCOR 74
EXCK 76
SBSO 75
EMPH 72
SQCK 78
SQSO 77
MON 95
FSW 94
MDP 96
MDS 97
CLOCK GENERARATOR
DIGITAL PLL VARI-PITCH DOUBLE SPEED
EFM DEMODULATOR
SYNC PROTECTOR
ASYMMETRY CORRECTION
MUX
REGISTER
32k RAM
ADDRESS GENERATOR
PRIORITY ENCODER
SERIAL/PARALLEL PROCESSOR
D/A DATA PROCESSOR
PEAK DETECTOR
DIGITAL OUT
TIMING GENERATOR 1
SUBCODE P-W PROCESSOR
SUBCODE Q PROCERSOR
ERROR CORRECTOR
CLV PROCESSOR
NOISE SHAPER
18-TIMES OVERSAMPLING FILTER
TIMING GENERATOR 2
CPU INTERFACE
SERVO AUTO SEQUENCER
SERVO MICRO PROGRAM INTERFACE
MIRR DFCT FOK DETECTOR
A/D CONVERTER
SERVO DSP
SLED SERVO
TRACKING SERVO
FOCUS SERVO
PWM GENERATOR
SLED PWM GENERATOR
TRACKING PWM GENERATOR
FOCUS PWM GENERATOR
45 PSSL
61-46 DA01~16
79 MUTE
71 D OUT
70 MD2
86 DATA
88 CLOK
87 XLAT
80 SENS
91 MIRR
92 DFCT
93 FOK
RFDC 26
TE 27
SE 28
FE 29
VC 30
3.100 SFDR. SFON
1.2 SRDR. SRON
4.7 TFDR. TFON
5.6 TRDR. TRON
8.11 FFDR. FFON
9.10 FRDR. FRON
2
14 16 17
TEST TES2 TES3
21 40 25 35
AVDD AVDD AVSS AVSS
41 90 13 63
ADD ADD ASS ASS
81
XRST

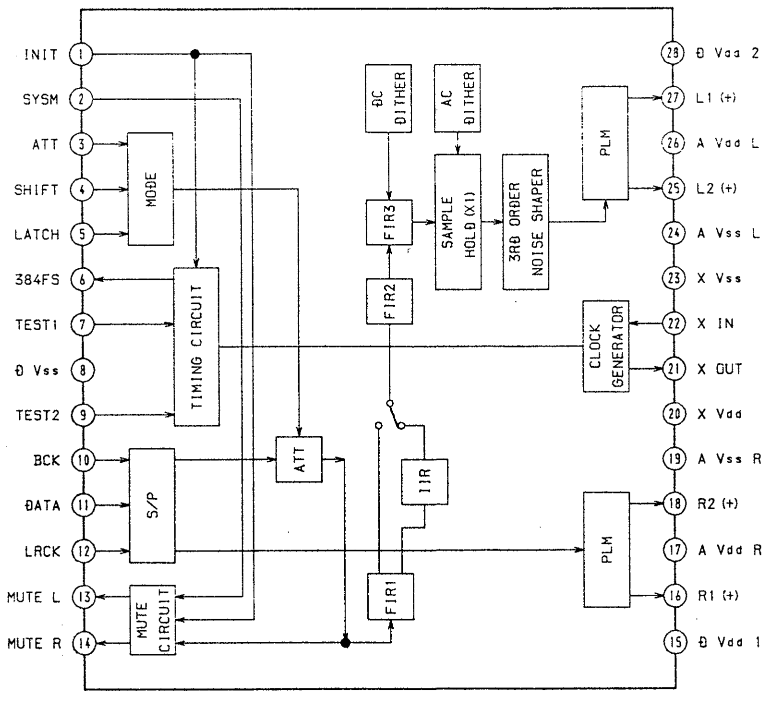
IC202 LB1641


T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1
2
3
4
5
6
7
8
9
10
GND
MOTOR DRIVE
NOISE FILTER
CLAMP
FWD/IN
REV/IN
VCC 1
VCC 2
NOISE FILTER
MOTOR DRIVE

IC901 LA5601

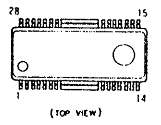

Cd
Vin
9
1
AMP
V REF
AMP
3 Vo
RESET
8 $\overline{RES}$
Vomute 7
ON/OFF
4 Cn
10 GND
2
EN
6
Vid
5
Vod

IC301 CXD2565M-1

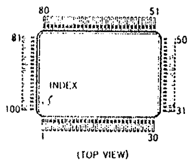

INIT 1
SYSM 2
ATT 3
SHIFT 4
LATCH 5
384FS 6
TEST1 7
D Vss 8
TEST2 9
BCK 10
DATA 11
LRCK 12
MUTE L 13
MUTE R 14
MODE
TIMING CIRCUIT
S/P
ATT
MUTE CIRCUIT
DC DITHER
AC DITHER
FIR3
FIR2
FIR1
IIR
SAMPLE HOLD (X1)
3RD ORDER NOISE SHAPER
PLM
PLM
CLOCK GENERATOR
28 D Vdd 2
27 L1 (+)
26 A Vdd L
25 L2 (+)
24 A Vss L
23 X Vss
22 X IN
21 X OUT
20 X Vdd
19 A Vss R
18 R2 (+)
17 A Vdd R
16 R1 (+)
15 D Vdd 1

4-6. SEMICONDUCTOR LEAD LAYOUTS

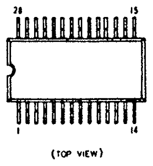
BA6297AFP


28
15
1
14
(TOP VIEW)

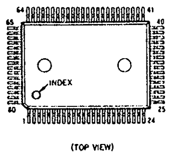
CXD2515Q


80
51
81
50
INDEX
100
31
1
30
(TOP VIEW)

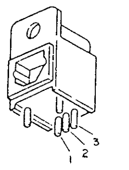
CXD2565M-1


28
15
1
14
(TOP VIEW)

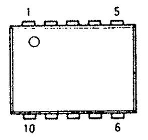
CXP82316-037Q


64
41
65
40
INDEX
80
25
1
24
(TOP VIEW)

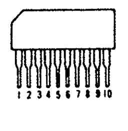
GP1F32TM



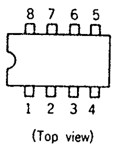
LA5601



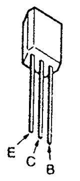
LB1641


1 2 3 4 5 6 7 8 9 10

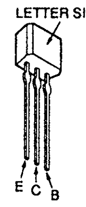
UPC4558C


8 7 6 5
1 2 3 4
(Top view)

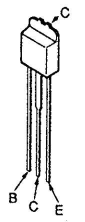
DTA144ES
DTC114ES
2SD2144S



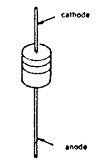
2SA1175-HFE


LETTER SIDE
E
C
B

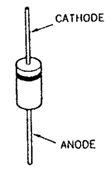
2SB1041



RD4.7ESB2
RD6.8ES-B3
RD30ES- B4
UZ-4.7BSB
UZ-6.8BSC
UZ-30BSD
11ES2


cathode
anode

1N4148M


CATHODE
ANODE

4-7. IC PIN FUNCTIONS

- **IC101 Digital Servo & DSP (CXD2515Q)**

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Not used)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Not used)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Not used)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Not used)
12	VCOO	O	VCO output for analog EFM PLL (Not used)
13	VCOI	I	VCO output for analog EFM PLL
14	TEST	I	TEST pin connected normally to GND
15	DVss	–	Digital GND
16	TES2	I	TEST pin connected normally to GND
17	TES3	I	TEST pin connected normally to GND
18	PDO	O	Charge-pump output for analog EFM PLL (Not used)
19	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
20	VCKI	I	Clock input from variable pitch external VCO
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog GND
24	ADII	I	Input pin for A/D converter
25	ADIO	O	Operational amplifier output pin
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog GND
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock
45	LRCK	O	48-bit slot D/A interface. LR clock
46	DATA	O	DA 16 output when PSSL=1. 48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1. 48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1. 64-bit slot data when PSSL=0 (Not used)
49	64BCLK	O	DA 13 output when PSSL=1. 64-bit slot data when PSSL=0 (Not used)
50	64LRCK	O	DA 12 output when PSSL=1. 64-bit slot data when PSSL=0 (Not used)
51	GTOP	O	DA 11 output when PSSL=1. GTOP output when PSSL=0 (Not used)
52	XUGF	O	DA 10 output when PSSL=1. XUGF output when PSSL=0 (Not used)
53	XPLCK	O	DA 09 output when PSSL=1. XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1. GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1. RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1. C2PO output when PSSL=0 (Not used)
57	XRAOF	O	DA 05 output when PSSL=1. XRA0F output when PSSL=0 (Not used)
58	MNT3	O	DA 04 output when PSSL=1. MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1. MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1. MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1. MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Not used)
64	XTSL	I	X'tal selection input pin (Connected to GND)
65	DVss	–	Digital GND
66	FSTI	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	C4M	O	4.2336 MHz output (Not used)
69	C16M	O	16.9344 MHz output (Not used)
70	MD2	I	Digital-out ON/OFF control pin
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Not used)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output (Not used)
76	EXCK	I	Clock input for SBS0 read-out (Connected to GND)
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQS0 read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode (Connected to +5V)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	DFCT selection pin
85	ATSK	I	Input pin for anti-shock

Pin No.	Pin Name	I/O	Function
86	DATA	I	Serial data input, supplied from IC201 (master control)
87	XLAT	I	Latch input, supplied from IC201 (master control)
88	CLOK	I	Serial data transfer clock input, supplied from IC201 (master control)
89	COUT	O	Numbers of track counted signal output (Not used)
90	DV$_{DD}$	–	Digital power supply
91	MIRR	O	Mirror signal output (Not used)
92	DFCT	O	Defect signal output (Not used)
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter (Not used)
95	MON	O	Output to control ON/OFF of spindle motor (Not used)
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Not used)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

- **IC201 Master Control (CXP82316-037Q)**

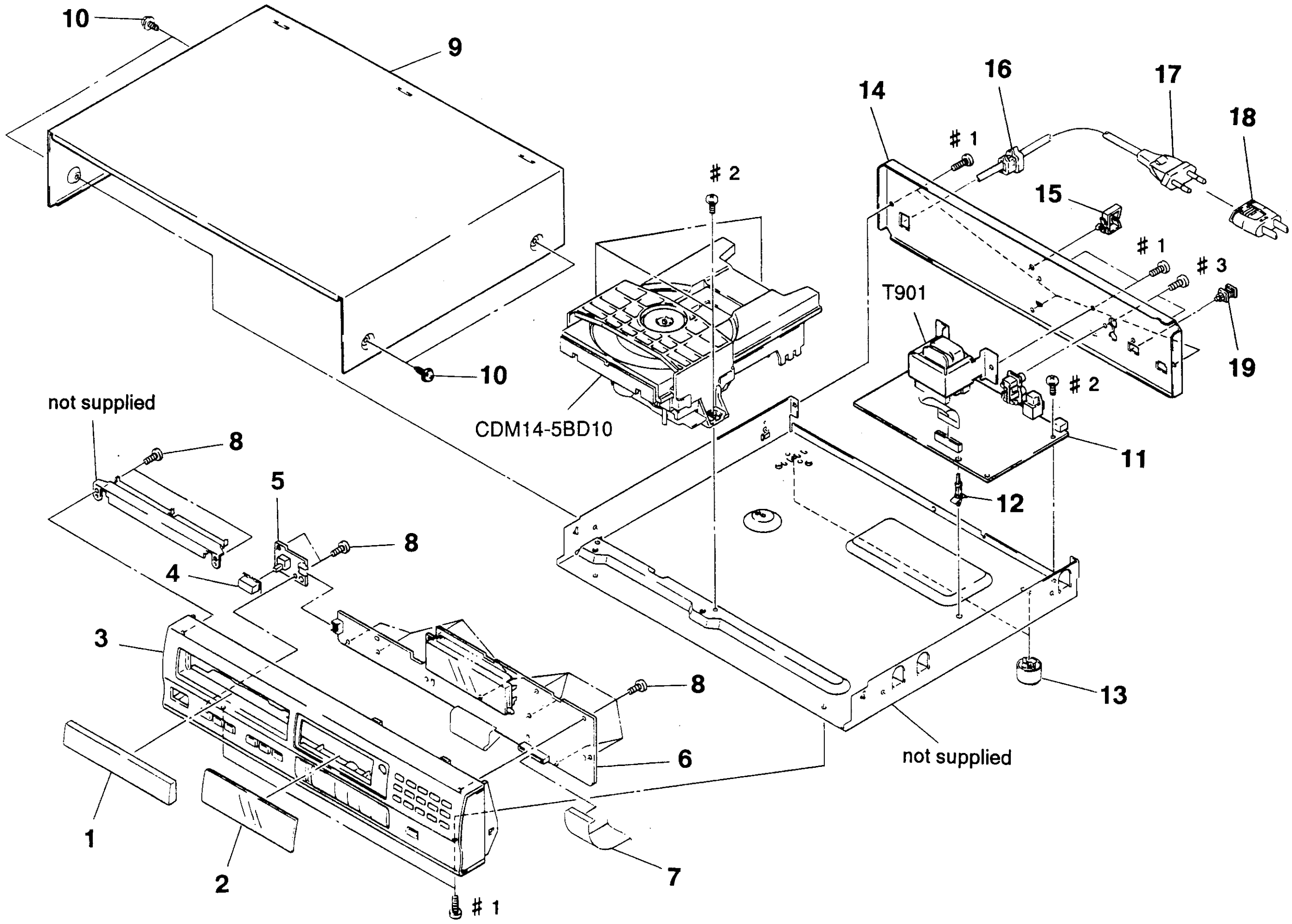
Pin No.	Pin Name	I/O	Function
1	TIMER	–	Connected to GND.
2	BUS IN	I	Audio bus input.
3	+5V	–	Connected to +5V.
4	OPEN	–	Not used. (open).
5	OPEN	–	
6	BUS OUT	O	Audio bus output.
7	PGML	O	Latch signal output to digital filter (IC301).
8	CLK	O	Serial clock output.
9	SENSE	I	SENSE signal input.
10	DATA	O	Serial data output.
11	SQCK	O	Read out clock output for subcode Q data.
12	SUBQ	I	Subcode Q data input.
13	OPEN	–	Not used. (open)
14	AMUTE	O	Analog muting control signal output.
15	LDON	O	Optical pickup laser diode control output.
16	XLT	O	Serial data latch signal output.
17	RV LED	O	Remote commander volume LED. (Not used. (open))
18	RV+	O	Remote commander volume +. (Not used. (open))
19	RV–	O	Remote commander volume –. (Not used. (open))
20	LDOUT	O	Loading motor control signal output.
21	LDIN	O	
22 to 27	KEY0 to KEY5	I	Key input. (S202 to S229)
28	ADJ/AFADJ	–	ADJ, AFJ test pin.
29	IN/OUTSW	I	Loading IN/OUT switch input.
30	RST	I	Reset signal input.
31	EXTAL	I	Clock input. (4 MHz)
32	XTAL	O	Clock output. (4 MHz)
33	Vss	–	GND
34 to 41	OPEN	–	Not used. (open)
42 to 62	S1 to S21	O	FL segment output.
63 to 67	1G to 5G	O	FL grid output.
68	OPEN	–	Not used. (open).
69	6G	O	FL grid output.
70	7G	O	
71	VFDP (–30V)	–	–30V pin for FL display tube.
72	VDD (+5V)	–	+5V pin.
73	——	–	
74	SEL1	–	Connected to GND.
75	IN PORT	–	Not used. (open).
76	IN PORT	–	
77	IN PORT	–	
78	SCOR	I	Read out timing signal input for subcode Q data.
79	SEL2	–	Connected to +5V.
80	SEL3	–	Connected to GND.

SECTION 5
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- EA : Saudi Arabia model

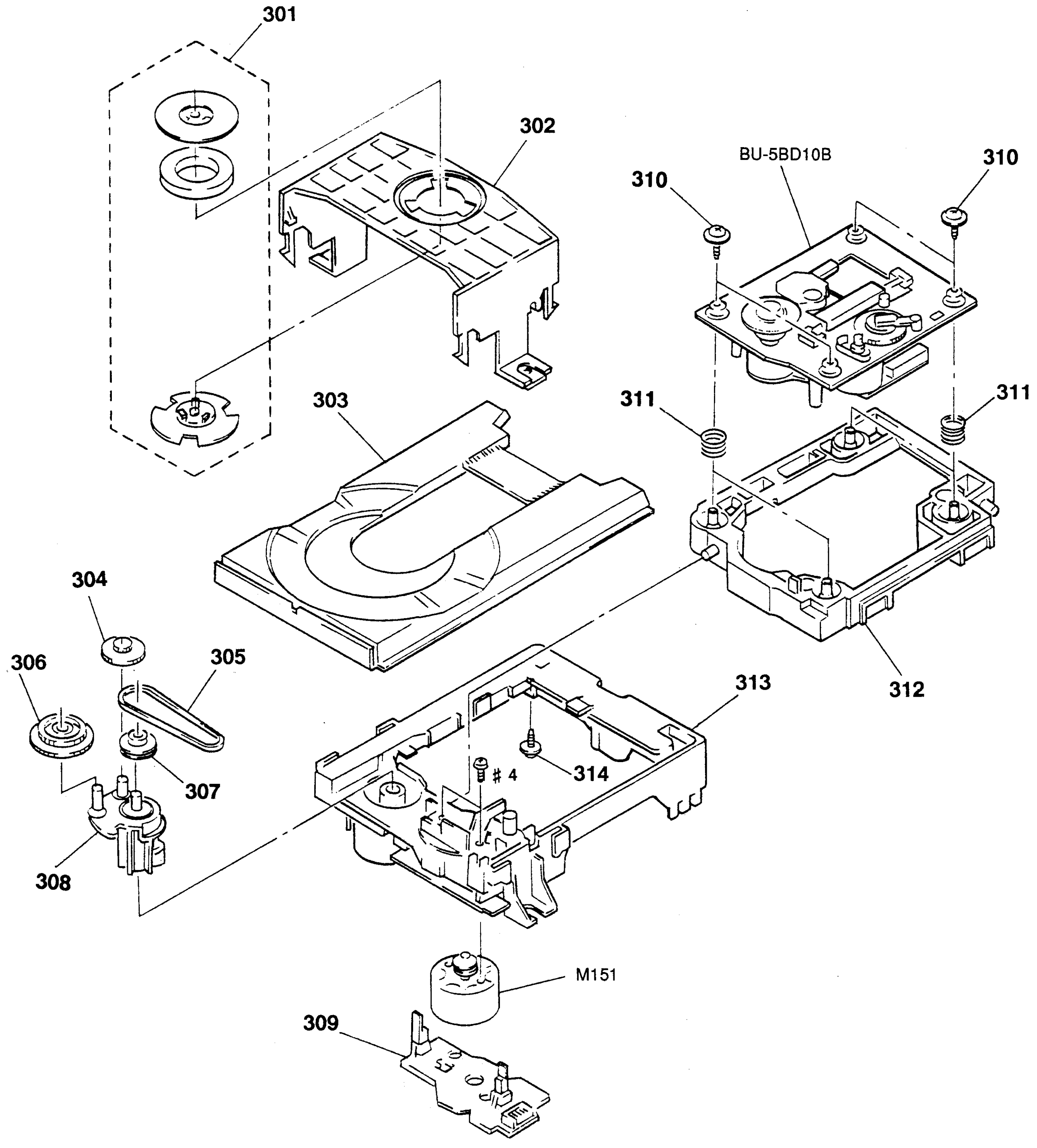
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET SECTION



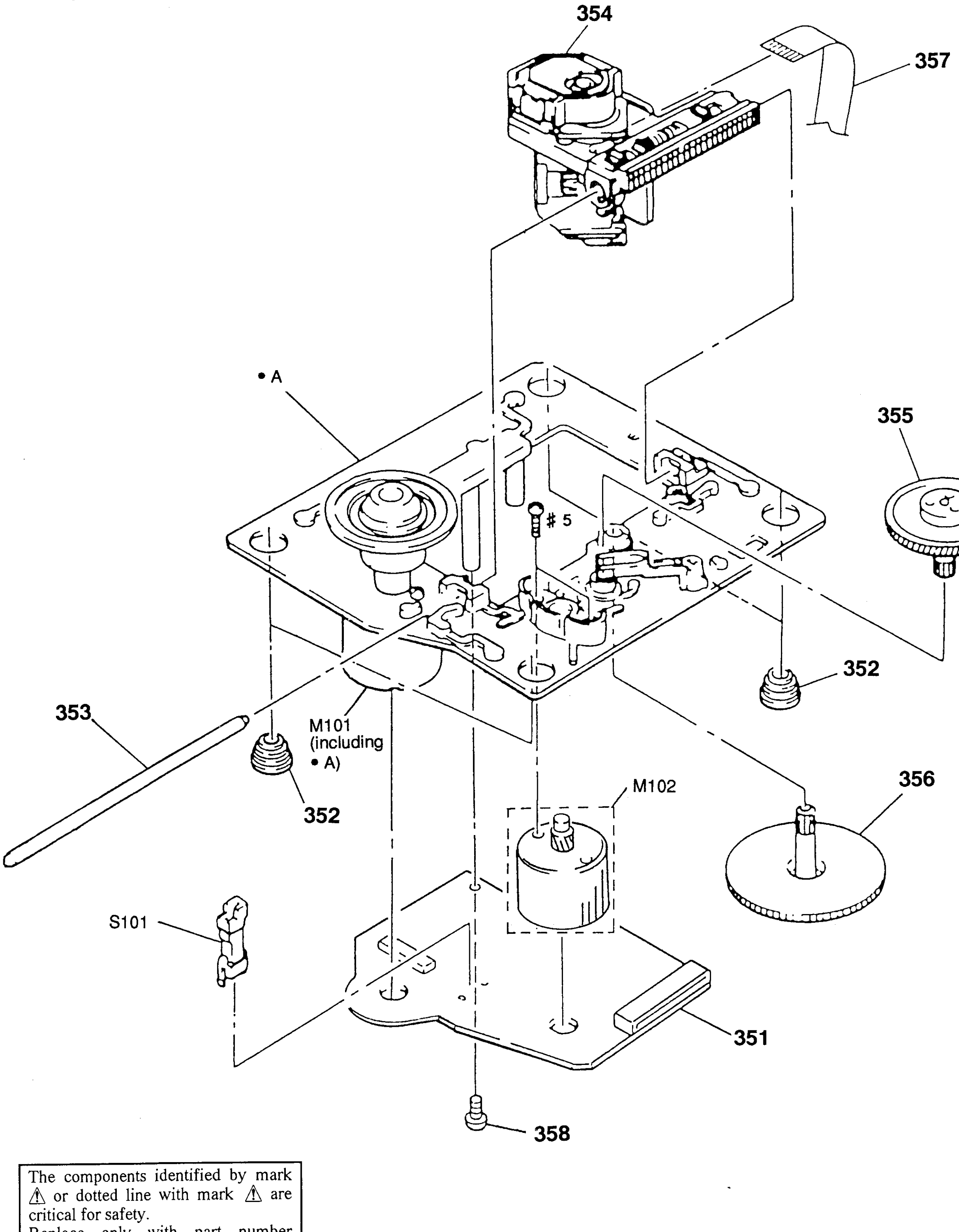
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-963-099-11	PANEL, LOADING		* 14	4-964-507-01	PANEL, BACK (Made in JAPAN)(AEP)	
2	4-963-100-01	PLATE, INDICATION		* 14	4-964-507-11	PANEL, BACK (E, EA)	
3	X-4944-764-1	PANEL ASSY, FRONT		* 14	4-963-101-01	PANEL, BACK (Made in FRANCE)	
4	4-963-098-01	BUTTON (POWER)		* 15	4-949-235-01	HOOK (Made in JAPAN)	
* 5	1-650-484-11	POWER BOARD		* 15	3-681-263-11	SADDLE, WIRE (Made in FRANCE)	
* 6	A-4673-054-A	DISPLAY BOARD, COMPLETE (AEP)		* 16	3-703-244-00	BUSHING (2104), CORD (AEP, EA)	
* 6	A-4673-112-A	DISPLAY BOARD, COMPLETE (E, EA)		* 16	3-703-571-11	BUSHING (S)(4516), CORD (E)	
7	1-751-947-11	WIRE (FLAT TYPE)(21 CORE)		⚠17	1-575-651-71	CORD, POWER (AEP, EA)	
8	4-951-620-01	SCREW (2.6X8), +BVTP		⚠17	1-575-656-21	CORD, POWER (E)	
9	4-919-376-31	CASE		⚠18	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
10	3-704-366-01	SCREW (CASE)(M3X8)		⚠18	1-569-008-11	ADAPTER, CONVERSION 2P (EA)	
* 11	A-4673-053-A	MAIN BOARD, COMPLETE (AEP)		19	1-251-199-11	CAP (OPT)(AEP)	
* 11	A-4673-055-A	MAIN BOARD, COMPLETE (E, EA)		⚠T901	1-423-979-11	TRANSFORMER, POWER (AEP)	
* 12	4-954-051-51	HOLDER, PC BOARD		⚠T901	1-426-622-11	TRANSFORMER, POWER (E, EA)	
13	4-931-169-01	FOOT					

5-2. CD MECHANISM SECTION (CDM14-5BD10)


301
302
BU-5BD10B
310
310
303
311
311
304
306
305
313
312
314
# 4
307
308
M151
309

Ref. No.	Part No.	Description	Remark
* 301	1-452-538-11	MAGNET	
302	4-933-110-01	HOLDER (MG)	
303	4-933-112-01	TABLE, DISK	
304	4-927-628-01	GEAR (C)	
305	4-927-649-01	BELT	
306	4-933-107-01	GEAR (PL)	
307	4-927-651-01	PULLEY (S)	
308	4-933-109-01	CAM	
* 309	1-645-721-11	LOADING BOARD	
310	4-933-134-01	SCREW (+PTPWH M2.6X6)	
311	4-959-996-01	SPRING (932), COMPRESSION	
312	4-933-129-01	HOLDER (BU)	
313	4-933-111-01	CHASSIS (MD)	
* 314	4-917-583-21	BRACKET, YOKE	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

5-3. OPTICAL PICK-UP BLOCK SECTION
(BU-5BD10B)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 351	A-4649-432-A	BD BOARD, COMPLETE	
352	4-951-940-01	INSULATOR (BU)	
353	4-917-565-01	SHAFT, SLED	
⚠354	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
355	4-917-567-01	GEAR (M)	
356	4-917-564-01	GEAR (P), FLATNESS	

Ref. No.	Part No.	Description	Remark
357	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
358	4-951-620-01	SCREW (2.6X8), +BVTP	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

BD

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- EA: Saudi Arabia model

Ref. No.	Part No.	Description				Remark
*	A-4649-432-A	BD BOARD, COMPLETE				
		******************				
		< CAPACITOR >				
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C106	1-164-346-11	CERAMIC CHIP	1uF		16V	
C107	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C109	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C113	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C151	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C152	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V	
C155	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C156	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C157	1-163-033-00	CERAMIC CHIP	0.022uF		50V	
C158	1-163-033-00	CERAMIC CHIP	0.022uF		50V	
C159	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	
C160	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C161	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
		< CONNECTOR >				
* CN101	1-568-865-11	SOCKET, CONNECTOR 23P				
CN102	1-568-795-11	SOCKET, CONNECTOR 12P				
		< IC >				
IC101	8-752-361-90	IC CXD2515Q				
IC102	8-759-071-79	IC BA6297AFP				
		< RESISTOR >				
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R102	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R105	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R109	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R110	1-216-025-00	METAL CHIP	100	5%	1/10W	
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R114	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R117	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R118	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R121	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R122	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R124	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R125	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R127	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R131	1-216-037-00	METAL CHIP	330	5%	1/10W	
R151	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R152	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R153	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R154	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R155	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R156	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R157	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R158	1-216-076-00	METAL CHIP	13K	5%	1/10W	
R159	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R160	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W	
R162	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R163	1-216-093-00	METAL CHIP	68K	5%	1/10W	
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT)				

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DISPLAY

Ref. No.	Part No.	Description	Remark
*	A-4673-054-A	DISPLAY BOARD, COMPLETE (AEP)	
		******************************	
*	A-4673-112-A	DISPLAY BOARD, COMPLETE (E, EA)	
		*******************************	
		< CAPACITOR >	
C201	1-164-159-11	CERAMIC 0.1uF 50V	
C202	1-164-159-11	CERAMIC 0.1uF 50V	
C203	1-161-494-00	CERAMIC 0.022uF 25V	
C204	1-164-159-11	CERAMIC 0.1uF 50V	
C205	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C206	1-162-282-31	CERAMIC 100PF 10% 50V	
C207	1-136-165-00	FILM 0.1uF 5% 50V	
		< CONNECTOR >	
CN201	1-750-999-11	CONNECTOR, FFC/FPC 21P	
CN203	1-750-185-11	CONNECTOR, BOARD TO BOARD 4P	
		< CONNECTOR >	
CNP201	1-537-472-11	JUMPER, FILM (WITH TERMINAL) 23P	
		< DIODE >	
D201	8-719-109-81	DIODE RD4.7ESB2	
		< FLUORESCENT INDICATOR >	
FLD201	1-519-752-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC201	8-752-851-82	IC CXP82316-037Q	
IC202	8-759-822-09	IC LB1641	
		< COIL >	
L201	1-410-322-11	INDUCTOR 3.3uH (AEP)	
L202	1-410-322-11	INDUCTOR 3.3uH	
		< TRANSISTOR >	
Q201	8-729-900-80	TRANSISTOR DTC114ES	
		< RESISTOR >	
R201	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R202	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R203	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R204	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R205	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R206	1-249-426-11	CARBON 5.6K 5% 1/4W	
R207	1-249-430-11	CARBON 12K 5% 1/4W	
R208	1-249-435-11	CARBON 33K 5% 1/4W	
R209	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R210	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R211	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R212	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R213	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R214	1-249-426-11	CARBON 5.6K 5% 1/4W	
R215	1-249-430-11	CARBON 12K 5% 1/4W	
R216	1-249-435-11	CARBON 33K 5% 1/4W	
R217	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R218	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R219	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R220	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R221	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R222	1-249-426-11	CARBON 5.6K 5% 1/4W	
R223	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R224	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R225	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R226	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R227	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R228	1-249-426-11	CARBON 5.6K 5% 1/4W	
R229	1-249-441-11	CARBON 100K 5% 1/4W	
R230	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R231	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R232	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R234	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R235	1-249-417-11	CARBON 1K 5% 1/4W F	
R236	1-249-428-11	CARBON 8.2K 5% 1/4W F	
		< SWITCH >	
S202	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S203	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S204	1-554-303-21	SWITCH, TACTILE (PROGRAM)	
S205	1-554-303-21	SWITCH, TACTILE (TIME)	
S206	1-554-303-21	SWITCH, TACTILE (REPEAT)	
S207	1-554-303-21	SWITCH, TACTILE (FADER)	
S208	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)	
S209	1-554-303-21	SWITCH, TACTILE (▷)	
S210	1-554-303-21	SWITCH, TACTILE (❚❚)	
S211	1-554-303-21	SWITCH, TACTILE (■)	
S212	1-554-303-21	SWITCH, TACTILE (|◁◁/◀◀)	
S213	1-554-303-21	SWITCH, TACTILE (▷▷|/▶▶)	
S214	1-554-303-21	SWITCH, TACTILE (EDIT)	
S215	1-554-303-21	SWITCH, TACTILE (1)	
S216	1-554-303-21	SWITCH, TACTILE (2)	
S217	1-554-303-21	SWITCH, TACTILE (3)	
S218	1-554-303-21	SWITCH, TACTILE (4)	
S219	1-554-303-21	SWITCH, TACTILE (5)	
S220	1-554-303-21	SWITCH, TACTILE (6)	
S221	1-554-303-21	SWITCH, TACTILE (7)	
S222	1-554-303-21	SWITCH, TACTILE (8)	
S223	1-554-303-21	SWITCH, TACTILE (9)	

DISPLAY LOADING MAIN

Ref.No.	Part No.	Description	Remark
S224	1-554-303-21	SWITCH, TACTILE (10)	
S225	1-554-303-21	SWITCH, TACTILE (M.SCAN)	
S226	1-554-303-21	SWITCH, TACTILE (P.SEARCH)	
S227	1-554-303-21	SWITCH, TACTILE (CHECK)	
S228	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S229	1-554-303-21	SWITCH, TACTILE (>10)	

< VIBRATOR >

Ref.No.	Part No.	Description	Remark
X201	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	

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* 1-645-721-11 LOADING BOARD

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< CONNECTOR >

Ref.No.	Part No.	Description	Remark
* CN151	1-568-943-11	PIN, CONNECTOR 5P	

< MOTOR >

Ref.No.	Part No.	Description	Remark
M151	A-4640-363-A	MOTOR (L) ASSY (LOADING)	

< SWITCH >

Ref.No.	Part No.	Description	Remark
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	

****

* A-4673-053-A MAIN BOARD, COMPLETE (AEP)

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* A-4673-055-A MAIN BOARD, COMPLETE (E,EA)

****

< CAPACITOR >

Ref.No.	Part No.	Description				Remark
C301	1-126-923-11	ELECT	220uF	20%	10V	
C302	1-126-923-11	ELECT	220uF	20%	10V	
C303	1-161-494-00	CERAMIC	0.022uF		25V	
C305	1-161-494-00	CERAMIC	0.022uF		25V	(E,EA)
C305	1-164-159-11	CERAMIC	0.1uF		50V	(AEP)
C306	1-161-494-00	CERAMIC	0.022uF		25V	(E,EA)
C306	1-164-159-11	CERAMIC	0.1uF		50V	(AEP)
C307	1-162-282-31	CERAMIC	100PF	10%	50V	
C308	1-162-282-31	CERAMIC	100PF	10%	50V	
C309	1-161-494-00	CERAMIC	0.022uF		25V	
C310	1-161-494-00	CERAMIC	0.022uF		25V	
C311	1-124-126-00	ELECT	47uF	20%	16V	
C312	1-124-126-00	ELECT	47uF	20%	16V	
C313	1-162-196-31	CERAMIC	5.6PF	10%	50V	
C314	1-162-196-31	CERAMIC	5.6PF	10%	50V	
C315	1-164-159-11	CERAMIC	0.1uF		50V	
C316	1-126-933-11	ELECT	100uF	20%	16V	
C317	1-162-290-31	CERAMIC	470PF	10%	50V	
C321	1-162-215-31	CERAMIC	47PF	5%	50V	
C322	1-162-215-31	CERAMIC	47PF	5%	50V	
C323	1-162-215-31	CERAMIC	47PF	5%	50V	
C324	1-162-215-31	CERAMIC	47PF	5%	50V	
C325	1-124-126-00	ELECT	47uF	20%	16V	
C326	1-124-126-00	ELECT	47uF	20%	16V	
C327	1-130-472-00	MYLAR	0.0012uF	5%	50V	
C328	1-130-472-00	MYLAR	0.0012uF	5%	50V	
C329	1-130-479-00	MYLAR	0.0047uF	5%	50V	
C330	1-130-479-00	MYLAR	0.0047uF	5%	50V	
C331	1-124-126-00	ELECT	47uF	20%	16V	
C332	1-124-126-00	ELECT	47uF	20%	16V	
C333	1-130-468-00	MYLAR	560PF	5%	50V	
C334	1-130-468-00	MYLAR	560PF	5%	50V	
C351	1-136-165-00	FILM	0.1uF	5%	50V	(AEP)
C401	1-124-126-00	ELECT	47uF	20%	16V	
C402	1-164-159-11	CERAMIC	0.1uF		50V	
C403	1-164-159-11	CERAMIC	0.1uF		50V	
C901	1-124-894-11	ELECT	6800uF	20%	16V	(AEP)
C901	1-126-768-11	ELECT	2200uF	20%	16V	(E,EA)
C902	1-126-939-11	ELECT	10000uF	20%	16V	
C903	1-128-576-11	ELECT	100uF	20%	63V	
C904	1-164-159-11	CERAMIC	0.1uF		50V	
C908	1-126-964-11	ELECT	10uF	20%	50V	
C909	1-126-964-11	ELECT	10uF	20%	50V	
C910	1-126-934-11	ELECT	220uF	20%	16V	
C911	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C912	1-126-964-11	ELECT	10uF	20%	50V	
C913	1-126-934-11	ELECT	220uF	20%	16V	
C914	1-124-903-11	ELECT	1uF	20%	50V	
C915	1-126-964-11	ELECT	10uF	20%	50V	
C916	1-126-964-11	ELECT	10uF	20%	50V	
C917	1-126-964-11	ELECT	10uF	20%	50V	
C918	1-164-159-11	CERAMIC	0.1uF		50V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN301	1-750-999-11	CONNECTOR, FFC/FPC 21P	
* CN401	1-565-561-11	PIN, CONNECTOR 3P	
* CN901	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P	

< DIODE >

Ref.No.	Part No.	Description		Remark
D401	8-719-987-63	DIODE	1N4148M	
D901	8-719-200-82	DIODE	11ES2	
D902	8-719-200-82	DIODE	11ES2	
D903	8-719-200-82	DIODE	11ES2	
D904	8-719-200-82	DIODE	11ES2	
D905	8-719-200-82	DIODE	11ES2	
D906	8-719-987-63	DIODE	1N4148M	
D907	8-719-109-98	DIODE	RD6.8ES-B3	

Ref.No.	Part No.	Description	Remark
D908	8-719-113-90	DIODE RD30ES-T2B4	
D909	8-719-987-63	DIODE 1N4148M	
D910	8-719-987-63	DIODE 1N4148M	
D911	8-719-987-63	DIODE 1N4148M	
D912	8-719-987-63	DIODE 1N4148M	
D913	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC301	8-752-360-60	IC CXD2565M-1	
IC302	8-759-145-58	IC UPC4558C	
IC303	8-759-145-58	IC UPC4558C	
IC351	8-759-265-78	IC GP1F32TN (DIGITAL OUT OPTICAL)(AEP)	
IC901	8-759-821-93	IC LA5601	
		< JACK >	
J301	1-750-679-21	JACK, PIN 2P (LINE OUT)	
		< COIL >	
L301	1-410-507-11	INDUCTOR 6.8uH (AEP)	
L302	1-410-322-11	INDUCTOR 3.3uH	
L303	1-410-322-11	INDUCTOR 3.3uH	
L304	1-247-807-11	CARBON 100 5% 1/4W	(E,EA)
L304	1-410-507-11	INDUCTOR 6.8uH (AEP)	
L351	1-410-322-11	INDUCTOR 3.3uH (AEP)	
L401	1-410-322-11	INDUCTOR 3.3uH	
L901	1-408-429-00	INDUCTOR 470uH	
		< TRANSISTOR >	
Q301	8-729-922-37	TRANSISTOR 2SD2144S	
Q302	8-729-922-37	TRANSISTOR 2SD2144S	
Q401	8-729-900-80	TRANSISTOR DTC114ES	
Q901	8-729-019-64	TRANSISTOR 2SB1041	
Q902	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q903	8-729-900-65	TRANSISTOR DTA144ES	
		< RESISTOR >	
R301	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R302	1-249-409-11	CARBON 220 5% 1/4W F	(AEP)
R302	1-249-411-11	CARBON 330 5% 1/4W	(E,EA)
R303	1-249-417-11	CARBON 1K 5% 1/4W F	
R304	1-249-436-11	CARBON 39K 5% 1/4W	
R305	1-249-436-11	CARBON 39K 5% 1/4W	
R306	1-247-807-11	CARBON 100 5% 1/4W	
R307	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R308	1-249-436-11	CARBON 39K 5% 1/4W	
R309	1-249-436-11	CARBON 39K 5% 1/4W	
R321	1-249-431-11	CARBON 15K 5% 1/4W	
R322	1-249-431-11	CARBON 15K 5% 1/4W	
R323	1-249-431-11	CARBON 15K 5% 1/4W	
R324	1-249-431-11	CARBON 15K 5% 1/4W	

Ref.No.	Part No.	Description	Remark
R325	1-249-437-11	CARBON 47K 5% 1/4W	
R326	1-249-437-11	CARBON 47K 5% 1/4W	
R327	1-249-437-11	CARBON 47K 5% 1/4W	
R328	1-249-437-11	CARBON 47K 5% 1/4W	
R329	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R330	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R331	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R332	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R333	1-247-891-00	CARBON 330K 5% 1/4W	
R334	1-247-891-00	CARBON 330K 5% 1/4W	
R335	1-249-417-11	CARBON 1K 5% 1/4W F	
R336	1-249-417-11	CARBON 1K 5% 1/4W F	
R337	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R338	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R401	1-249-429-11	CARBON 10K 5% 1/4W	
R402	1-249-417-11	CARBON 1K 5% 1/4W F	
R403	1-249-393-11	CARBON 10 5% 1/4W F	
R901	1-249-432-11	CARBON 18K 5% 1/4W	
R902	1-249-432-11	CARBON 18K 5% 1/4W	
R903	1-249-441-11	CARBON 100K 5% 1/4W	
R904	1-249-441-11	CARBON 100K 5% 1/4W	
R905	1-249-432-11	CARBON 18K 5% 1/4W	
R906	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R907	1-249-385-11	CARBON 2.2 5% 1/6W F	
R908	1-247-807-11	CARBON 100 5% 1/4W	
R909	1-249-441-11	CARBON 100K 5% 1/4W	
R910	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R911	1-249-404-00	CARBON 82 5% 1/4W	
		< SWITCH >	
⚠SW901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (E,EA)	
		< TRANSFORMER >	
⚠T901	1-423-979-11	TRANSFORMER, POWER (AEP)	
⚠T901	1-426-622-11	TRANSFORMER, POWER (E,EA)	
		< VIBRATOR >	
X301	1-579-833-21	VIBRATOR, CRYSTAL (33.8688MHz)(E,EA)	
X301	1-579-834-11	VIBRATOR, CRYSTAL (33.8688MHz)(AEP)	

****

Ref.No.	Part No.	Description	Remark
*	1-650-484-11	POWER BOARD ***********	
		< CONNECTOR >	
CN204	1-750-194-11	CONNECTOR, BOARD TO BOARD 4P	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

POWER

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S201	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
7	1-751-947-11	WIRE (FLAT TYPE)(21 CORE)	
⚠17	1-575-651-71	CORD, POWER (AEP, EA)	
⚠17	1-575-656-21	CORD, POWER (E)	
⚠18	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
⚠18	1-569-008-11	ADAPTER, CONVERSION 2P (EA)	
19	1-251-199-11	CAP (OPT)(AEP)	
* 301	1-452-538-11	MAGNET	
⚠354	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
⚠T901	1-426-622-11	TRANSFORMER, POWER (E, EA)	
⚠T901	1-423-979-11	TRANSFORMER, POWER (AEP)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-558-271-11	CORD, CONNECTION (AUDIO)(108cm AEP)	
*	4-922-998-06	CUSHION (four pieces in one package)	
*	4-948-882-51	INDIVIDUAL CARTON (Made in FRANCE)	
*	4-965-377-01	INDIVIDUAL CARTON (Made in JAPAN)	

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HARDWARE LIST
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Ref. No.	Part No.	Description	Remark
#1	7-682-548-04	SCREW +BVTT 3X8 (S)	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#4	7-621-775-10	SCREW +B 2.6X4	
#5	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-959-376-11

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